THE IRON TRADE REVIEW

Volume LI CLEVELAND, SEPTEMBER 26, 1912 Number 13

Consumers Insist Upon Buying Finished Material

For Next Year's Delivery—Mills Taking Orders Very Cautiously —Pig Iron Prices Advancing and Demand Continues Strong

Buyers are forcing sellers to make contracts for finished materials for delivery after Jan. 1. Mills, crowded with orders and anxious to await further developments before taking any considerable tonnage for next year's delivery, are reluctantly booking orders for delivery during the first quarter and in some cases through the first half of the new year. The Steel Corporation continues to adhere to an extremely conservative policy, both as to prices and as to tonnages booked. Production continues at a tremendous rate. If the Steel Corporation continues its present rate of production, its output of steel ingots will be about 17,000,000 tons for the year, or about 3,000,000 tons more than its previous high record. This rate of output indicates a total ingot production by the country of nearly 30,000,000 tons. The stock of pig iron on hand in the middle western territory declined about 10,000 tons during the first half of September, bringing the tonnage on hand to about 498,000, of which at least 140,000 tons of Bessemer are sold. For the first time in several years, the stocks are below 500,000 tons.

Rails

The condition of the order books of rail makers is in striking contrast with September, 1911, when practically no tonnage for this year had been entered. The rail makers now have upon their books for next year's delivery about 800,000 tons, of which somewhat more than half has been awarded to the Steel Corporation. Railroads are showing their eagerness to cover early for their requirements and prepare for the great activity expected next year. Of the New York Central order of 115,000 tons, the Steel Corporation will receive about 65,000 tons. The Pennsylvania order will soon be placed and is estimated at 250,000 tons. The Baltimore & Ohio will probably order 150,000 tons. The order of the Central of New Jersey for next year calls for 16,000 tons, of which 10,000 tons will be furnished by the Pennsylvania Steel Co. and 6,000 tons by the Bethlehem Steel Co.

Pig Iron

The pig iron market has developed still greater strength. Advancing quotations do not more than temporarily defer buying and further heavy tonnages have been placed on order books, especially in the Buffalo and Pittsburgh markets. Inquiry for first quarter basic in the Pittsburgh district amounts to fully 70,000 tons and about 40,000 tons of Bessemer for delivery during the first quarter are involved in pending business. A sale of 10,000 tons of prompt basic to a Youngstown consumer was made at $15.25, valley, which was an advance of 75 cents above the market of last week. A similar tonnage of Bessemer was sold at $16, valley, an advance of 50 cents above the highest quotation of the year. A Youngstown company has been sounding the market on a large tonnage of basic and Bessemer. Foundry iron is selling at $15 to $15.25.

Coke

The coke market is very strong. Two large eastern consumers have closed with Connellsville operators for first half requirements, aggregating 50,000 tons or more of furnace coke monthly, at $2.50, ovens. Some consumers are having trouble in getting quotations on account of the cautious attitude of operators, especially those in West Virginia and Virginia. It is understood that the agency of a number of independent producers in the Connellsville region has sold half of its output of furnace coke up to July 1, at $2.50, ovens.

Exports

Heavy inquiry for pig iron for export continues to come to southern makers, but no additional sales are reported. The Steel Corporation will furnish 3,000 tons of cotton ties for export to India on a regular contract and about 2,000 tons of bridge work for shipment to Mexico.

Shapes and Plates

Fabricating prices of structural material are now higher than for several years. Awards of the past week included 10,688 tons for various projects placed at Chicago and 5,000 tons for the new Arlington hotel, Washington, to be furnished by the American Bridge Co. It is now officially announced that the American Bridge Co. will fabricate the 35,000 tons for the Equitable building in New York. This company has closed for 8,000 tons for subway sections in New York City, and will supply 4,000 tons for the new ore dock of the Great Northern at Allouez Bay.

Iron Ore

Unusual difficulties are attending the movement of iron ore from the head of the lakes. Fear is entertained that some shippers will not be able to move as much as they had expected. This may result in a shortage of ore before navigation opens. Car shortage, insufficient mine labor and washouts have contributed to delay shipments and during the past few days heavy fogs have made the movement of vessels slow.

PITTSBURGH

Pig Iron Prices Sharply Advanced

Office of THE IRON TRADE REVIEW,
2148-49 Oliver Bldg., Sept. 24.

Leading iron and steel manufacturers in this district have opened books for the first quarter of 1913, and rather heavy tonnages have been booked despite the fact that mills have not solicited new orders. Steel bars for shipment before April 1 are quoted at 1.35c, iron bars at 1.50c and 1.55c, and plates and shapes are quoted at 1.40c and 1.45c, although some of the mills are quoting 1.50c on small tonnage. Leading sheet makers have booked tonnage for first quarter shipment at prevailing quotations and some of the mills are selling tin plate for shipment the first three months of next year on the prevailing $3.60 basis. Specifying continues heavy and shipments this month have not fallen off.

The pig iron market has been more active and rather sharp advances in price values have been noticed. Prompt Bessemer has sold as high as $16, valley, basic has brought as high as $15.25, valley, for this year's shipment, and foundry has reached the $15, valley, mark. Coke has stiffened. A round tonnage of prompt furnace coke sold at $2.65, ovens, early this week and contract furnace fuel is rapidly reaching the $2.50 mark. Foundry fuel is quoted at $3, for both prompt and future shipment. Blue annealed sheets advanced last Thursday $1 a ton, and nuts, bolts and rivets have been advanced on an irregular basis. Wire products are strong, and the scrap market has stiffened during the week.

Pig Iron.—Rather sharp advances have been noted in some grades of pig iron this week. On Tuesday 10,000 tons of prompt basic were sold to a Youngstown consumer at $15.25, valley, which is 75 cents above the market of a week ago. Early this week a similar tonnage of Bessemer was sold to a consumer in this immediate district at $16, valley, which is 50 cents above the maximum quotation of last week. This iron will be shipped over the remainder of the year. Inquiry for first quarter basic aggregates in the neighborhood of 70,000 tons and it is estimated that 40,000 tons of first quarter Bessemer are involved in pending negotiations. Less than a week ago, 5,000 tons of basic, for shipment the remainder of this and the first three months of next year, sold at $14.75, valley, and at least 3,000 tons of first quarter Bessemer has been obtained at $15.75, valley. Some sellers are asking $15.50, valley, for next year's basic and as high as $16.50, valley, is asked for Bessemer for similar shipment. Prompt and first quarter foundry iron this week has sold as high as $15, valley, and it is doubted if this figure could be duplicated, especially for 1913 shipment, as some of the leading sellers are refusing to quote below $15.25 and $15.50. The Westinghouse Electric & Mfg. Co. has not closed its inquiry for foundry, and it is reported the Mesta Machine Co. is in the market for a round tonnage. Demand for malleable iron has not been so active, although it is doubted if $14.75, valley, could be shaded for prompt shipment. Fifteen dollars and $15.25, valley, are asked by some sellers for first quarter shipment. Although no sales of gray forge iron have been reported, it is generally conceded this grade cannot be obtained at less than $14 or $14.50, valley, for this year's shipment.

Quotations for the remainder of the year and first quarter shipment are as follows:

(Prompt and Fourth Quarter Shipment.)

Bessemer, valley	$15.75 to 16.00
Bessemer, Pittsburgh	16.65 to 16.90
Basic, valley	14.75 to 15.25
Basic, Pittsburgh	15.65 to 16.15
No. 2 foundry, valley	14.75 to 15.00
No. 2 foundry, Pittsburgh	15.65 to 15.90
Gray forge, valley	14.00 to 14.50
Gray forge, Pittsburgh	14.90 to 15.40
Malleable, valley	14.50 to 14.75
Malleable, Pittsburgh	15.40 to 15.65

(First Quarter.)

Bessemer, valley	$15.75 to 16.00
Bessemer, Pittsburgh	16.65 to 16.90
Basic, valley	15.00 to 15.25
Basic, Pittsburgh	15.90 to 16.15
No. 2 foundry, valley	15.00 to 15.25
No. 2 foundry, Pittsburgh	15.90 to 16.15
Gray forge, valley	14.25 to 14.75
Gray forge, Pittsburgh	15.15 to 15.65
Malleable, valley	15.00 to 15.25
Malleable, Pittsburgh	15.90 to 16.15

Ferro-Alloys.—Sellers of ferro-manganese are quoting $59.50, seaboard, for future shipment, having adopted this figure the first of the week, following similar action in the east. On prompt material, from $61 to $70 is being asked, but no sales have been made owing to the scarcity of this alloy. Small lots, for 1913 shipment, were obtained last week at $56.50. No changes on other alloys are reported.

We quote 80 per cent ferro-manganese at $61 to $65, Baltimore, for prompt delivery and $56.50 to $59.50 for forward shipment. The freight rate from Baltimore to Pittsburgh is $1.95 per ton.

Fifty per cent ferro-silicon is quoted nominally at $72.50, Pittsburgh, for prompt and forward delivery; 12 per cent, $22; 11 per cent, $21; 10 per cent, $20, f. o. b. Globe, Jisco and Ashland furnaces. The freight rate to Pittsburgh is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

On ferro-titanium we quote 8 cents per pound for carload lots; 10 cents per pound for 2,000 pound lots and over, and 12½ cents per pound in lots up to 2,000 pounds.

Plates.—Leading independent manufacturers are asking 1.45c and 1.50c in some cases for plates to be delivered the first quarter of next year, and rather heavy tonnages have been booked at those figures. The leading interest is quoting 1.40c for first quarter shipment, but is booking but little tonnage. Where rather early shipment is possible, mills have been able to obtain $1 and $2 premiums. Specifying continues brisk and heavy shipments are being made by all the mills. The Pressed Steel Car Co. has taken an order from the Union Tank line for 1,000 tank cars. The Central Railroad of New Jersey is reported to be in the market for 1,000 hopper cars, and the B. & O. has entered for 500 or 1,000 steel underframes. Quotations, which are firm, follow:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.40c to 1.45c. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches 0.10c; circles, 0.20c. Plates in widths over, 100 inches up to 110 inches 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ¼ inch to and including 3-16-inch plate on thin edge, 0.10c; under 3-16 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Sheets.—Blue annealed sheets were advanced last Thursday and are now quoted at $1.55 for No. 10 gage, although some sellers, able to make early shipment, are asking $1.60. Most

of the mills are booking tonnage for first quarter shipment, on the basis of $2.15 for No. 28 black, $1.55 for No. 10 blue annealed, and $3.30 for No. 28 galvanized products. Leading manufacturers are practically out of the market for this year, and makers able to deliver products before Jan. 1 are obtaining $1 and $2 a ton above the accompanying quotations. Quotations for the remainder of this year and first quarter of next are as follows:

Flat Sheets.

Black Sheets.—Nos. 10-12 gage, $1.80 per 100 pounds; Nos. 13-14 gage, $1.85; Nos. 15-16 gage, $1.90; Nos. 17-21 gage, $1.95; Nos. 22-24 gage, $2; Nos. 25-26 gage, $2.05; No. 27 gage, $2.10; No. 28 gage, $2.15; No. 29 gage, $2.20; No. 30 gage, $2.30.

Tin mill sizes, Nos. 15-16 gage, $1.90 per 100 pounds; Nos. 17-21, gage, $1.95; Nos. 22-24 gage, $2.00; Nos. 25-27 gage, $2.05; No. 28 gage, $2.10; Nos. 29-30 gage, $2.15; Nos. 30½-31 gage, $2.20; No. 32 gage, $2.25.

Blue Annealed.—Nos. 3-8, $1.50 per 100 pounds; Nos. 9-10, $1.55; Nos. 11-12, $1.60; Nos. 13-14, $1.65; Nos. 15-16, $1.75.

Galvanized.

Nos. 10-11 gage, $2.30 per 100 pounds; Nos. 12-14 gage, $2.40; Nos. 15-16 gage, $2.55; Nos. 17-21 gage, $2.70; Nos. 22-24 gage, $2.80; Nos. 25-26 gage, $3.00; No. 27 gage, $3.15; No. 28 gage, $3.30; No. 29 gage, $3.40; No. 30 gage, $3.60.

Roofing Sheets.

Net extras on all gages per 100 pounds. Corrugated 2-inch, 2½-inch, 3-inch and 5-inch corrugation, 5c; 2 V crimped without sticks, 5c; corrugated 1¼-inch corrugation, 10c; 3 V crimped without sticks, 10c; pressed standing seam with cleats, 15c; plain roll roofing with or without cleats, 15c.

Painted Roofing.

12 to 18 gage, inc., 5c; 19 to 24 gage, inc., 10c; 25 to 28 gage inc., 15c.

Tin Plate. — Some makers of tin plate are taking first quarter tonnage on the basis of $3.60, but as a rule manufacturers have hesitated about booking tonnage at prevailing quotations. Pig tin has been advancing sharply, and talk of an advance in tin plate before the end of the year is heard. Demand for this year's material is light, but specifying continues heavy. Following is the prevailing quotation:

Coke tin plate, 100-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburgh district.

Rails and Track Material.—Although small tonnages of steel rails have been booked for 1913 shipment, mills report that active buying has not yet begun. There has been some new demand for shipment this year and the Carnegie Steel Co. continues to make rather heavy shipment abroad. Spikes have been in good demand, and makers are holding firmly to the $1.80 quotation, although it is reported that the New York Central Lines obtained part of a 50,000 keg order at $1.75 for this year's shipment. The remainder of this order will be shipped the first six months of next year, on the $1.80 basis. Another road has closed for 10,000 kegs for first quarter shipment, at $1.80, and it is doubted whether this figure can now be shaded. Rails are quoted as follows, with the base price on open-hearth sections 1.34c per pound at the mill:

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, 1.25c, the schedule on the other weights being irregular and subject to negotiations; angle bars for standard sections, 1.50c, Pittsburgh; track bolts, 2.00c to 2.10c, Pittsburgh.

Railroad Spikes.

4½, 5 and 5½ and 9-16	$1.75 to $1.80
3, 3½, 4, 4½ and 5 x ½	.10
3½, 4 and 4½ x 7-16	.20
3, 3½, 4 and 4½ x ⅜	.30
2½ x ⅜	.40
2½, 3 and 3½ x 5-16	.60
2 x 5-16	.80

Billets and Sheet Bars.—Semi-finished steel continues scarce, and no sales have been reported for a couple of weeks, despite the rather heavy new demand. All of the available material is in the hands of brokers, who will be able to obtain almost any price they care to ask when they decide to sell. Because of the fact that no sales are reported it is possible to give only nominal quotations, which follow:

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $24.50 to $25.00, with the usual extra for size and analysis, and open-hearth rolling billets, $25.00 to $25.50. Bessemer sheet and tin bars are quoted at $24.50 to $25.00, and open-hearth sheet bars are quoted $25.00 to $25.50, f. o. b. Pittsburgh and Youngstown for fourth quarter, with full freight to destination added. Forging billets are quoted at $31.00 to $32.00, Pittsburgh.

Hoops and Bands.—It is impossible to obtain hoops at less than 1.45c and bands at less than 1.35c, Pittsburgh, which, in each case, is $1 a ton above the prevailing minimum quotation of a week ago. The leading interest is making these quotations, and independent makers are asking 1.50c and 1.40c for hoops and bands, respectively. Specifying has been heavy, and there is some tonnage being placed for first quarter shipment. Revised quotations follow:

Hoops in carload lots, 1.45c to 1.50c; Pittsburgh; in less than carload lots, 1.50c to 1.55c; bands 1.35c to 1.40c, base, with net extras, as per standard steel.

Merchant Bars.—Practically all the makers of iron and steel bars are booking tonnage for first quarter shipment, on the basis of 1.35c for steel bars and 1.50c and 1.55c for iron bars. The Carnegie Steel Co., the Republic Iron & Steel Co. and the Jones & Laughlin Steel Co. are holding firmly to the 1.35c quotation, but each is scrutinizing contracts closely, and tonnages are reduced in many instances. Mills already have sufficient tonnage on their books to necessitate maximum operation well into first quarter, and there is no solicitation for additional tonnage. One of the mills has booked a rather heavy tonnage of shafting on the basis of 62 per cent off, for first quarter shipment, although it is predicted an advance of $2 a ton will be announced shortly. Quotations for the remainder of the year and first quarter shipment are as follows:

Common iron bars, 1.50c to 1.55c, Pittsburgh; Bessemer and open-hearth steel bars, 1.35c; plow and cultivator, 1.35c, channels, angles, zees, tees, under 3 inch, 1.45c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds and not less than 1,000 pounds of a size, 0.15 advance, less than 1,000 pounds, 0.35. Cold rolled, and ground shafting, 62 per cent off in carloads and 57 per cent in less than carloads, delivered in base territory.

Muck Bar.—There is rather heavy new demand for muck bar, despite the fact that consumers covered requirements earlier in the year. No sales, however, have been reported. The market is strong at $31, Pittsburgh.

Bolts, Nuts and Rivets.—Following the lead taken by eastern manufacturers, makers in this district have issued new lists which show advances of several dollars on some sizes. Button head structural rivets have been advanced from $1.80 to $1.90, but no change is noted in the value of boiler rivets, which are still quoted at $2. Revised bolt and nut discounts show irregular advances in price value. Although the present list is supposed to hold until January, many believe another advance will be made before the end of the year. Makers are three and four months deferred on some sizes. Demand continues heavy and specifying is free. Following are the revised quotations adopted by makers in this territory:

Rivets

Button head structural rivets, $1.90; cone head boiler rivets, $2.

Bolt and Nut Discounts

Carriage bolts, ¾ x 6 inches, smaller and shorter, cut threads, 75, 10 and 2½; larger and longer, 70, 10.

Machine bolts with hot pressed nuts; ¾ x 4 inches, smaller and shorter, rolled, 75, 10, 10 and 2½; cut, 75, 10 and 7½; larger and longer, 70, 10 and 5.

Gimlet and cone point lag or coach screws, 80 and 12½.

Hot pressed square, blank or tapped nuts, $5.90 off list; hot pressed hexagon blank or tapped, $6.55.

Cold pressed C. & T. square, blank or tapped, $5.90 off; hexagon, blank or tapped, ⅝-inch and larger, $6.85 off; smaller than ⅝-inch, $7.45 off.

Structural Shapes. — Independent makers are quoting 1.45c on structural shapes for shipment first quarter, and one of the mills is asking

1.50c for small tonnages. The leading interest, however, is booking limited tonnage at 1.40c. Fabricators report that no important contracts have been placed in this district, although inquiry is more active than a few weeks ago. The McClintic-Marshall Co. has booked 200 tons for an extension to the open-hearth plant of La Belle Iron Works, Steubenville, O. Quotations are being firmly held and are as follows:

Beams and channels, 15 inches and under, zees, 1.40c to 1.45c; tees, 1.45c to 1.50c; angles, from 3 to 6 inches, 1.40c to 1.45c; over 6 inches, 1.50c to 1.55c; universal and sheared, 1.40c to 1.45c.

Merchant Pipe.—No large pipe orders have been taken this week, although small orders represent heavy tonnage in the aggregate. Mills have been unable to catch up in deliveries, and considerable complaint is heard from consumers on account of deferred shipments. Makers of iron pipe have not adopted a revised list, to correspond to the new classification of steel pipe. Several iron pipe manufacturers are quoting $2 a ton above the list accompanying this report. An inquiry for eight miles of 8-inch pipe for western shipment is expected to be closed this week. Official discounts to jobbers, subject to the usual preferential discount to the large buyer, are being firmly held, and are as follows:

Iron and Steel Pipe Basing Prices

STEEL.

	Butt.		Lap.	
	Black.	Galv.	Black.	Galv.
⅛, ¼ and ⅜ inch.	72	52	..	..
½ inch	76	66	..	..
¾ to 3 inch	79	71	..	..
2 inch	..	..	76	68
2½ to 6 inch	..	..	78	70
7 inch to 12 inch	..	..	76	66
13 to 15 inch	..	..	53	..
Extra Strong, Plain Ends.				
⅛, ¼ and ⅜ inch.	68	58	..	..
½ inch	73	67	..	..
¾ to 1½ inch	77	71	..	..
2 to 3 inch	78	72	..	..
2 inch	..	..	74	66
2½ to 4 inch	..	..	76	68
4½ to 6 inch	..	..	75	67
7 to 8 inch	..	..	68	58
9 to 12 inch	..	..	63	53
Double Extra Strong Plain Ends.				
½ inch	63	57	..	..
¾ to 1½ inch	66	60	..	..
2 to 2½ inch	68	62	..	..
2 inch	..	..	64	58
2½ to 4 inch	..	..	66	60
4½ to 6 inch	..	..	65	59
7 to 8 inch	..	..	58	48

IRON.

⅜ inch	67	51	..	..
½ inch	70	57	..	..
¾ to 1½ inch	73	62	..	..
2 and 2½ inch	74	63	..	..
2 inch	..	..	70	61
2½ to 4 inch	..	..	72	64
4½ to 6 inch	..	..	71	63
7 to 12 inch	..	..	69	56
Extra Strong Plain Ends, Card Weight.				
⅜ inch	64	53	..	..
½ inch	68	61	..	..
¾ to 1½ inch	72	63	..	..
2 and 2½ inch	73	64	..	..
2 inch	..	..	67	61
2½ to 4 inch	..	..	71	64
4½ to 6 inch	..	..	70	63
7 to 8 inch	..	..	64	54
9 to 12 inch	..	..	59	48
Double Extra Strong Plain Ends, Card Weight.				
½ inch	58	50	..	..
¾ to 1½ inch	61	53	..	..
2 and 2½ inch	63	55	..	..
2 inch	..	..	56	50
2½ to 4 inch	..	..	61	55
4½ to 6 inch	..	..	60	54
7 and 8 inch	..	..	53	43

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

The above discounts are for full weight pipe, subject to a variation of 5 per cent, merchant pipe, when specified, being furnished up to 6 inches at one point higher discount (lower price).

Boiler Tubes.—New quotations on iron boiler tubes, announced a week ago, have been established without difficulty. Demand for both boiler and merchant tubes has been fairly heavy, and specifications against contracts are liberal. The following discounts prevail:

	Steel.	Iron.
1½ inch	..	..
1¾ to 2¼ inch	62	47
2½ inch	64½	52
2¾ to 3¼ inch	69½	54½
3½ to 4½ inch	72	57
5 and 6 inch	64½	..
7 to 13 inch	62	..

To destination east of Mississippi river will be sold at delivered discount for carloads lowered by 2 points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire.—Wire products are stronger than at any time in several years. None of the makers are shading prevailing quotations, and in some instances premiums are paid where early shipment is possible. Most of the mills have filled contracts taken at prices lower than those now prevailing. Shipments to all parts of the country, particularly the west, northwest and Canada, are heavy, and there has been some new demand. As a rule, manufacturers of wire and nails are declining to accept contracts extending beyond Dec. 31, although it was reported today one of the leading independent makers has booked a rather heavy tonnage at $1 a ton above prevailing quotations. It is generally believed another advance in value will be announced before many 1913 tonnages are booked. The following quotations are firm:

Wire nails, jobbers' carload lots, $1.70; retailers' carload lots, $1.75; cut nails (western makers), jobbers' lots, $1.65 to $1.70, painted barb wire, jobbers' carload lots, $1.70; retailers' carload lots, $1.75, with 30c for galvanizing; plain wire to jobbers in carloads, $1.50; and to dealers, in carloads, $1.55; polished staples, $1.70; galvanized staples, $2.00.

Wire Rods.—New demand for wire rods has been heavy, despite the fact that most consumers covered estimated requirements earlier in the year. Manufacturers have been receiving telegrams and special delivery letters, asking for additional tonnages. One of the leading interests is quoting $28 and $29, Pittsburgh, and a sale of a few days ago was closed at $27, Pittsburgh. We quote both Bessemer and open-hearth wire rods at $27 and $28, Pittsburgh.

Coke.—The coke market is strong, and prompt furnace coke has sold as high as $2.65 this week. A few days after the Youngstown Sheet & Tube Co. closed for about 70,000 tons a month for 1913 shipment, another consumer in the same district obtained about 20,000 tons a month in the neighborhood of $2.45, ovens. Some contract furnace coke has sold at $2.50, ovens, and most of the leading sellers are refusing to shade this figure. Foundry coke has sold at $3, ovens, for prompt shipment and sellers are holding firmly to that figure as a rule. The Connellsville *Courier*, for the week ended Sept. 14, says that production gained 14,942 tons as compared with the week before, the increase being evenly divided. Shipments made a gain of 417 cars. Following are the quotations for this week:

Connellsville	furnace	$2.40 to 2.65
Connellsville	furnace contract	2.35 to 2.50
Connellsville	foundry	2.75 to 3.00
Connellsville	foundry contract	2.75 to 3.00

Old Material.—Iron and steel scrap is selling at advanced quotations. Heavy melting steel has sold as high as $14.50, and most of the dealers are asking $14.50 as their minimum quotation. Malleable is quoted at 25 cents above the figure of a week ago, and old iron rails are bringing 50 cents above the prevailing quotation of last week. Old car wheels have advanced $1 a ton, and No. 1 cast scrap is now quoted at $13.50 to $13.75. Borings and turnings have not advanced, as consumers are well provided and have not had to enter the market for additional material. We quote gross tons, delivered in the Pittsburgh district, including Brackenridge, Steubenville and Follansbee, as follows:

Heavy melting scrap	$14.25 to 14.50
Rerolling rails	15.00 to 15.50
Malleable	13.00 to 13.50
Bundled sheet scrap	12.25 to 12.50
Iron axles	24.00 to 25.00
Old iron rails	16.00 to 16.50
Stove plate	10.50 to 11.00
No. 1 wrought scrap	14.50 to 14.75
Old car wheels	15.00 to 15.50
Low phosphorus	17.00 to 17.25
Machine shop turnings	10.75 to 11.00
Cast borings	9.75 to 10.00
No. 1 cast scrap	13.50 to 13.75

Charcoal Stack Lighted.—The furnace of the Lake Superior Iron & Chemical Co. at Ashland, Wis., resumed work on Sept. 17, after being idle since July 1. During that time nearly $50,000 have been expended in improvements and repairs, keeping practically the entire regular force of workmen in employment.

CHICAGO

Booking Finished Material Conservatively

Office of THE IRON TRADE REVIEW,
1328 Monadnock Blk., Sept. 24.

Producers in this territory are now taking a little business for the first quarter. This action is considerably curtailed by the amount of unfilled tonnage in prospect at the first of the year. One of the leading independents in this territory has taken some orders for steel bars on a basis of 1.40c, Pittsburgh, and a small amount of structural business at 1.45c. In other instances as high as 1.50c, Pittsburgh, is being obtained for bars, plates and shapes. The same independent has withdrawn quotations on steel bars. The leading interest is out of the market on plates, bars and structurals, but is taking some business for 1913 delivery at current quotations in other lines. Railroad inquiry is heavy, a number of rail orders having been placed during the week, including some substantial tonnages in track fastenings to cover next year's requirements.

Pig Iron.—The lower quotations on southern iron have been withdrawn and the market is now firm at a minimum of $13.50, Birmingham, for delivery to this territory during the first quarter. Furnaces are willing to sell for the second quarter, but some of the leading southern producers have instructed their connections in this territory to submit all proposals before closing. The minimum quotation for delivery during the remainder of the year is now $13.25, Birmingham. There is some inquiry for immediate delivery and for the last quarter, but it involves no material tonnages as compared to that for the first half. Inquiry for the latter period has fallen off somewhat during the past week, due in part to the heavy buying movement of the week previous and to the fact that some melters are covering only for business now on the books. Both northern and southern producers, however, are showing no disposition to weaken and are predicting that within a very short time $14, Birmingham, will be the minimum quotation on southern iron. Northern iron displays greater strength, one of the leading furnace interests in this territory continuing its quotation of $17.50 at the furnace, and is now firm at that figure. Although no heavy tonnages have been placed, the movement of northern iron at current quotations is substantial. Jackson county silveries have been advanced in this territory and are showing considerable firmness. Inquiries for lots of 2,400 and 1,100 tons of No. 2 foundry are in the market from Northern Illinois melters and the Western Electric Co. is inquiring for a small tonnage.

The following prices represent the market for Chicago delivery, except northern foundry and malleable Bessemer, which are quoted f. o. b. local furnaces:

	Rest of year.	First quarter.
Lake Superior Charcoal	$17.75	$17.75
Northern foundry No. 2	17.00	17.00
Southern foundry No. 2	17.60	17.85
South'n Silveries, 5 per cent sil.	18.35	.....
Jackson co. silv'r's 8 per cent.	19.40	.....
Malleable Bessemer	17.00	17.00
Alabama basic	17.85	.....

Billets.—The market for this material in this territory so far as production is concerned has practically ceased to exist. Such makers as ordinarily have billets for sale are now entirely out of the market. Nominal quotations continue to be $30 for open-hearth forging billets; re-rolling billets, $27.

Merchant Bars.—The total of specifications for bar iron is 100 per cent in excess of that maintaining 60 days ago. The market is very firm at from 1.45c to 1.50c and an increasingly large amount of business is being placed at 1.55c. The delivery situation is becoming worse and no business is being sought. One of the leading independent producers in this territory has withdrawn quotations on steel bars and has taken some business for first quarter delivery on a basis of 1.40c, Pittsburgh. In other cases, 1.50c is being obtained. The leading interest is practically out of the market on steel bars, owing to pronounced mill congestion.

We quote, f. o. b. Chicago, as follows:

Bar iron, 1.45c to 1.50c, hard steel bars, rerolled, 1.40c to 1.45c; soft steel bars, bands and small shapes, 1.53c; hoops, 1.58c to 1.63c; smooth finished machinery steel, 1 inch and larger, 1.78c; shafting 62 per cent off list for carload lots, 57 per cent off for less than carloads.

On iron and steel from local stock we quote as follows:

Bar iron, 1.90c per pound base; soft steel bars, 1.90c per pound base; soft steel hoops, 2.20c, full extras.

Structural Material.—Producers in this territory have taken a little business for delivery during the first quarter on account of the insistent demands of old customers rather than a desire to book business for that time. Independent producers are obtaining from 1.45c to 1.50c for shapes for next year's delivery. The total of the structural contracts placed during the week is 10,688 tons, over 95 per cent of which was taken by the leading interest. This consists of 205 tons from the Blodgett Construction Co. for girder spans at Vicksburg, Miss.; 6,109 tons from John Griffiths & Son for the Cook County hospital, Chicago; 141 tons from the Chicago & Northwestern Railway Co. for five deck plate girder spans and 3,680 tons from the Great Northern Railway Co., for an approach to ore dock No. 2. The St. Paul Foundry Co. has taken 141 tons from the city of Great Falls, Mont., for a high school building and the Worden-Allen Co. has taken 135 tons from the Lake Milling, Smelting & Refining Co. for a boiler house and steel stack at Point Mills, Mich., and the American Construction Co. has awarded a contract for 120 tons for a warehouse for the Peden Iron & Steel Co., Houston, Texas, to the Alfred E. Norton Co. A contract has also been placed for 157 tons for four highway spans in Yuba county, Cal.

We quote, mill prices, f. o. b. Chicago, as follows:

Beams and channels, 15 inch and under, 1.58c. For extras, see Pittsburgh report.

Store prices are as follows:

All angles, 3 inches and larger, including 6 inches, $2.00 per 100 pounds; angles over 6 inches, $2.10 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $2.00 per 100 pounds, base; channels, 3 inches and larger, $2.00 per 100 pounds, base.

Rails and Track Fastenings.—Rail inquiry is heavy and as the time approaches when the railroads' requirements for 1913 will be compiled, additional orders will probably be in the market. The Cotton Belt has bought 5,500 tons of Bessemer rails from the Illinois Steel Co., and the Missouri Pacific has taken 15,000 tons of rails, 9,000 tons of which was placed with the Illinois Steel Co. and 6,000 with the Colorado Fuel & Iron Co. The Chicago, Milwaukee & St. Paul has ordered 10,000 tons of rails from the Illinois Steel Co. and other larger tonnages

are pending. It is understood that some business in track fastenings has been placed for 1913 delivery at prices in advance of the prevailing quotations. Increasing trouble is being experienced in the delivery of this material and there is no hope of a betterment of conditions, as the railroads have been neglecting their supplies during the last few years and the consequent demand is very heavy.

We quote, light rails, f. o. b. Chicago, and track fastenings, f. o. b. Joliet, as follows:

Light rails, carloads, 25 to 45-pound, 1.30c; 16 to 20-pound, 1.35c; 12-pound, 1.40c; 8-pound, 1.50c.

Light section relayers, 45 pounds and under, subject to inspection, $22 to $24; standard section relaying rails, subject to inspection, $23 to $24.

Track fastenings, f. o. b. Joliet, angle bars, 1.50c; railroad spikes, 1.80c to 1.90c; smaller size spikes, 1.70c base; track bolts with square nuts, 2.20c to 2.30c.

Plates.—The leading interest is out of the market for this material and other western producers are in but little better condition. Heavy specifications from car builders are doing much to bring about these conditions. There is no cessation of railroad buying. The Canadian Pacific is in the market for 60 sleeping cars. The San Pedro, Los Angeles & Salt Lake is in the market for 350 box cars, and the Chicago, Burlington & Quincy is in the market for 500 steel underframe cars. The Wabash has ordered 500 hopper car bodies from the Western Steel Car & Foundry Co., and the Northern Pacific has ordered 2,500 steel underframes from the same maker. Railroads are making every effort to keep as many old cars as possible in commission by supplying them with steel underframes, which accounts for the demand. As it is estimated that the railroads are some years behind on equipment, it is expected that car purchases will continue unabated into 1913.

We quote, f. o. b. Chicago, as follows:

Tank plates, ¼ inch thick, 63/4 to 100 inches wide, 1.58c. For extras, see Pittsburgh report.

Store prices are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, 2.00c.

Sheets.—The sheet market is showing greater strength and consumers are beginning to feel the effects of congested mill conditions. This also extends to the jobbers, who are having great difficulty in filling orders, owing to shortages of stock. Higher quotations are expected in the near future, particularly on galvanized sheets, as the price of spelter continues to soar.

We quote, f. o. b. Chicago, as follows:

Blue annealed, No. 10, 2.15c; No. 12, 2.20c. Box annealed, No. 28, 2.70c. Galvanized No. 28, 3.90c.

For mill prices, see Pittsburgh report. Freight to Chicago, 18 cents.

Wire Products.—Although much of the buying at present is for the purpose of re-establishing depleted stocks, it is estimated that by far the larger part is due to excessive demand on the part of consumers. The large amount of construction that continues throughout the country is increasing the demand for wire nails and fencing wire is very strong.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.88; retailers' carload lots, $1.93, retailers' less than carload lots, $1.98; painted barb wire, jobbers' carload lots, $1.88; retailers' carload lots, $1.93; retailers' less than carload lots, $1.98, with 30c for galvanizing; plain wire, jobbers' carload lots, $1.68; retailers' carload lots, $1.73.

Merchant Pipe and Tubes. — Although the demand is increasingly heavy, there has been no further advance in quotations on pipe. Jobbers are specifying heavily against contracts and western makers are further behind on delivery. It is expected, however, that with the partial cessation of construction which must accompany the winter months, the producers will be able to bring their period of delivery down to a shorter time.

We quote, store prices on merchant pipe and tubes, as follows:

Iron and Steel Pipe Basing Prices.

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
Butt.				
⅛ inch and ¼ inch.	69.2	48.2	62.2	41.2
⅜ inch	73.2	62.2	67.2	51.2
½ inch to 1½ inch.	76.2	67.2	70.2	58.2
Lap.				
2 inch	73.2	64.2	67.2	57.2
4½ inch to 6 inch..	75.2	66.2	68.2	59.2
Card Weight.				
7 inch to 12 inch...	72.2	61.2	66.2	55.2
Extra Strong Plain Ends.				
Butt.				
⅛, ¼, ⅜ inch.....	64.2	52.2	59.2	47.2
½ inch	69.2	57.2	64.2	52.2
2 inch to 3 inch....	74.2	62.2	....	....
Lap.				
2 inch	70.2	58.2	65.2	53.2
7 inch to 8 inch....	64.2	52.2	59.2	47.2
Double Extra Strong.				
Butt.				
½ inch	57.2	45.2	....	....
¾ inch to 1½ inch	60.2	48.2	....	....
Lap.				
2 inch	58.2	46.2	....	....
4½ inch to 6 inch..	59.2	47.2	....	....
7 inch to 8 inch....	52.2	40.2	....	....

Tubes.

	Lap weld steel.	Charcoal iron.	Shelby seamless.
	Per cent.	Per cent.	Per cent.
1 inch	37	..	55½
1¼ to 2¼ inch.....	53	38	34
2¾ to 3¼ inch.....	63	48	44
3½ to 4½ inch.....	65½	48	44
5 to 6 inch.....	53	..	..

Cast Iron Pipe.—The United States Cast Iron Pipe & Foundry Co. has taken 2,800 tons of water pipe from Dayton, O., and the city of Nottingham has placed an order for 400 tons with the same maker. Although prices are very strong, there has been no advance, in spite of the strength in the pig iron market. Pipe makers find it difficult to establish higher quotations at the end of the season.

We quote, f. o. b. Chicago, as follows:

Four-inch water pipe, $30, 6 to 12 inches, $28, larger sizes, $27; gas pipe, $1 a ton higher.

Old Material.—The scrap market is stronger, almost every item on the list having advanced during the past week. This is due, in part at least, to speculative buying. Dealers in this territory are exhibiting bullish tendencies and are buying all the railroad scrap that is offered. They are able to do this advantageously at present, because, owing to the scarcity of labor, railroads are not able to move scrap promptly and dealers can avoid carrying charges to some extent. Stocks in the hands of consumers, however, are even larger, in the majority of cases being sufficient for at least 90 days. Scrap continues to pile up along the lines of the railroads and it is but a question of time until it is placed on the market. For this reason it is thought in many quarters that the present quotations represent an unnatural condition and that a break in the market will not be long in coming. The only railroad list of any consequence during the week was issued by the Chicago, Milwaukee & St. Paul Railway Co. This consists of 1,680 tons, on which bids closed Monday. The principal items were 500 tons of steel rails; 200 tons of No. 1 wrought and 250 tons of No. 2.

We quote, for delivery in consumers' yards, Chicago, as follows:

Gross Tons

Old car wheels	$13.25 to 13.75
Old iron rails	17.00 to 17.50
Rerolling rails (5 ft. and over)	14.75 to 15.20
Old steel rails (3 ft. and under)	13.50 to 14.00
Frogs, switches and guards	13.00 to 13.50
Heavy melting steel	13.00 to 13.50
Shoveling steel	13.00 to 13.50

Net Tons

No. 1 R. R. wrought	13.25 to 13.75
No. 2 R. R. wrought	12.25 to 12.75
Arch bars and transoms	17.00 to 17.50
Knuckles, couplers and springs	12.75 to 13.25
Shafting	16.25 to 16.75
Iron car axles	21.25 to 21.75
Steel car axles	17.00 to17.50
Locomotive tires	13.50 to 14.00
Dealers forge	10.25 to 10.75
Pipe and flues	10.25 to 10.75
No. 1 cast	12.00 to 12.50
No. 1 busheling	11.00 to 11.50
No. 2 busheling	8.00 to 8.50
No. 1 boiler cut	9.00 to 9.50
Boiler punchings	12.50 to 13.50
Cast and mixed borings	7.00 to 7.25
Machine shop turnings	8.00 to 8.50
Railroad malleable	13.00 to 13.50
Agricultural malleable	11.75 to 12.25
Angle bars, splices, etc., iron	16.00 to 16.75
Angle bars steel	12.50 to 13.00
Stove plate and light cast scrap	10.00 to 10.50

CLEVELAND

Heavy Inquiry for Steel Making Iron

Office of THE IRON TRADE REVIEW,
Penton Bldg., Sept. 24.

Iron Ore.—The car shortage being felt at the head of the lakes has resulted in a slower movement of ore, and there is little demand for wild vessels. Heavy fogs have interfered to a considerable extent with the movement of boats. A sale of 20,000 tons of Bessemer ore was made to a buyer who was fortunate enough to get vessel tonnage to move it. Inquiry for ore continues, but few transactions are recorded. For such wild tonnage as is being chartered, an advance of 15 cents over the contract rate is being paid.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $3.75; Mesabi Bessemer, $3.50; old range non-Bessemer, $3.00; Mesabi non Bessemer, $2.85.

Pig Iron.—The market continues very strong and a fair tonnage of No. 2 foundry has been disposed of on a basis of $16, Cleveland furnace. A Youngstown steel company has been feeling the market on both basic and Bessemer and it is believed that it is ready to take a large tonnage of both. The Andrews Steel Co., Newport, Ky., has inquired for 20,000 tons of basic for delivery over the remainder of this year, and the first quarter of next. Basic has sold as high as $15.25, valley. Brokers have sent out inquiries for large tonnages. The tonnage of foundry and steel-making irons for sale up to July 1, 1913, is not large, and if present demand continues, there will certainly be a shortage. For delivery during the remainder of this year and the first half of next year, we quote as follows, delivered in Cleveland:

No. 1 foundry	$16.25 to 16.50
No. 2 foundry	15.75 to 16.00
No. 2 southern	16.85 to 17.35
Bessemer	15.90 to 16.40
Lake Superior charcoal	16.60
Jackson co. 8 per cent silvery.	18.05

Coke.—Some of the large producers are experiencing great difficulty in keeping their production up to such an extent as to make required shipments. Prices are firm and some makers are asking $3.15 for foundry coke for both prompt delivery and first half of next year.

Connellsville furnace coke, $2.50 to $2.60 for prompt delivery, and $2.50 to $2.60 on contract; Connellsville foundry coke, $2.75 to $3.15 for prompt, and $2.75 to $3.15 on contract.

Finished Material.—Interest has centered in the development of the policies of different companies in regard to contracts for first quarter and first half of next year. The leading interest is not soliciting any business, and has taken a limited tonnage of steel bars at 1.35c, Pittsburgh, for first quarter of next year. It is declining to book any orders on plates and shapes for next year, but, in some cases has booked additional tonnages for the fourth quarter at 1.40c, Pittsburgh. The policies of independents vary somewhat, but most of them are booking bars at 1.35c for first quarter and 1.40c for second quarter and are taking contracts on shapes and plates for the first half of next year at 1.45c. Some of the independent companies are, however, following a very conservative and cautious policy in booking for next year's delivery. Eastern mills continue to quote for western shipment 1.50c, mill, on sheared plates and 1.55c on universals. The usual quotation on shapes of the eastern mills is 1.50c, mill, for prompt shipment and 1.40c for shipment within four or five weeks. Sheet makers are not disposed to make contracts for delivery after Jan. 1, especially on galvanized, but consumers are insisting on entering orders and some are being taken. It seems probable that there will soon be heavier contracting for shapes. The Carnegie Steel Co. has taken an order for 500 tons of standard Bessemer rails for this year's delivery from the Toledo, St. Louis & Western railroad. Hard steel bars for reinforcing are now being quoted at 1.35c, Pittsburgh. The Detroit Bridge & Iron Co. has taken 300 tons for a bridge at Port Huron. Warehouse business continues very active at the advanced prices announced last week.

Old Material.—Inquiries from the Pittsburgh district for steel-making scrap have come into the market during the past few days. Large tonnages are wanted for both prompt and future shipment. The market for heavy melting steel is strong, but largely for future shipments, some extending well into the first quarter. Few sales have been made, as dealers are unwilling to sell for future shipment at current prices, owing to the steady advances in pig iron and finished products. The rolling mills are again in the market for No. 1 busheling, after having been out of the market for some time. They are anxious to secure prompt deliveries, but the mills and dealers have not agreed on prices in most cases and few sales have been made. Cars are scarce. Miscellaneous scrap from outlying districts is not coming in in any volume, indicating that outside dealers are holding to their stocks. Old steel rails are in demand, sales having been made at a $1 advance over last week's prices. No. 1 cast is being sought by foundries, another foundry which has been out of the market for two years having inquired for some last week. Labor conditions are bad. We quote, f. o. b. Cleveland, as follows:

Gross Tons.

Old iron rails	$15.50 to 16.00
Old steel rails (under 6 ft.)	15.00 to 15.50
Old steel rails (over 6 ft.)	15.50 to 16.00
Relaying rails	22.00 to 22.50
Old car wheels	13.00 to 13.50
Old steel boiler plate	11.50 to 12.00
Malleable iron (railroad)	13.50 to 14.00
Steel axles	19.00 to 19.50
Axle turnings	11.00 to 11.50
Malleable iron (agricultural)	12.00 to 12.50
Heavy steel	13.25 to 13.50
Country mixed steel	12.25 to 12.50
Bundled sheet scrap	10.00 to 10.50

Net Tons.

No. 1 R. R. wrought	$13.50 to 14.00
No. 1 busheling	11.50 to 12.00
No. 1 machine cast	12.00 to 12.50
No. 1 dealers' wrought	11.50 to 12.00
Machine shop turnings	8.75 to 9.00
Pipes and flues	10.50 to 11.00
Wrought drillings	8.75 to 9.00
Cast borings	7.50 to 8.00
Stove plate	10.00 to 10.50
Wrought iron piling plate	15.50 to 16.00
Wrought iron arch bars	16.00 to 16.50

Steamship Accepted. — The steamship Minnesota, building for the American Hawaiian Steamship Co. by the Maryland Steel Co., at Sparrow's Point, Md., was delivered to the owners complete Sept. 16, and after a trial trip was accepted. This is the first vessel to be completed of a fleet of eight boats of similar size building for this steamship company at Sparrow's Point, for service through the Panama canal. Seven of these boats are still on the ways of the Maryland Steel Co. undergoing construction.

CINCINNATI

Inquiry for Round Tonnage of Basic

Office of THE IRON TRADE REVIEW,
503 Mercantile Library Bldg., Sept. 24.

Pig Iron. — The slow and gradual advance of prices continues despite the fact that there has been recently a decided dropping off in buying. Southern No. 2 foundry iron cannot be had at present from the Alabama furnaces for less than $13.25, Birmingham, for this year, while the quotations through the first quarter of next year range from $13.50 to $14. A recent sale of 300 tons of an Alabama iron is reported to have been made by a local firm at this last figure for the first quarter, which is the highest at which southern iron has sold since early in 1910. It is also quite probable that one or two furnaces in that state would sell through the entire first half at $14.50, Birmingham, but they are not actively soliciting business at this figure. Iron to be had at $12.50, Birmingham basis, has practically all disappeared among the Tennessee furnaces, and $13 is now the general minimum quotation, although a few scattering sales have been made recently at prices slightly under this figure for spot shipment. The Alabama quotations are also reported to have been shaded from time to time, but these sales were either of special nature, or the regular prices were forced to a lower level through competition with re-sale iron.

The southern Ohio situation is undoubtedly strong. The general quotation on No. 2 foundry iron in the Hanging Rock district is $15, Ironton, for spot and first half shipment, but sales are being made by a few furnaces at $15.50, for next year's delivery. There is a decided tendency among the southern Ohio producers not to solicit business, and iron cannot always be obtained from this territory in the amounts and for the deliveries wanted. Basic iron is in good demand, but it is scarce, and it is doubtful if the inquiries in the market at present can be filled by the Hanging Rock group.

Eight per cent silicon iron is now being held by both the Ashland and Jackson furnaces at from $16.50 to $17, furnace, or $17.70 to $18.20, Cincinnati. Lake Superior charcoal iron is now quoted at from $18.25 to $19.25, delivered in Cincinnati.

Inquiries in the market include 20,000 tons of basic iron for last quarter and first quarter shipment, and 1,200 tons of No. 3 southern, from separate users in local territory; 10,000 tons of basic for the first half of next year, from St. Louis territory; 1,200 tons of 3 to 3½ per cent silicon, and 1,200 tons of 2½ to 3 per cent silicon iron, from Lansing, Mich., for delivery this year and the first half of next, and from 100 to 150 tons of silvery iron from southern Michigan for prompt shipment. Recent sales have not been in large tonnages, and have been made mostly without inquiry. With freight rates $3.25 from Birmingham, and $1.20 from Ironton, we quote Cincinnati prices as follows:

Southern foundry No. 1	$16.75 to 17.50
Southern foundry No. 2	16.25 to 17.25
Southern foundry No. 3	15.75 to 16.25
Southern foundry No. 4	15.50 to 16.00
Southern gray forge	15.25 to 15.75
Mottled	14.75 to 15.25
Southern No. 1 soft	16.75 to 17.50
Southern No. 2 soft	16.25 to 17.25
Standard southern car wheel	26.25 to 26.50
Northern No. 2 foundry	16.20 to 16.70
Northern No. 3 foundry	15.70 to 16.45
Northern No. 4 foundry	15.45 to 16.00
Silveries 8 per cent silicon	17.70 to 18.20

Coke.—The coke market is unusually strong, and although prices vary somewhat among the different brands, they are being held slightly above those of last week. There is a decided scarcity of coke and of railroad cars, one large dealer reporting that he has several good inquiries at his disposal, but that he cannot get the coke to fill them. There is an inquiry in the market for about 6,000 tons of foundry coke from a nearby user, and the tonnage of furnace coke wanted will aggregate about 75,000. Connellsville furnace coke is being sold at $2.50, ovens, but some producers are still offering as low as $2.40. Wise county foundry coke is being held at from $2.65 to $3.25, and the Pocahontas and New River brands have been advanced proportionately. We quote below from the leading coke producing districts as follows:

Connellsville district:	Prompt shipment.	Contract second half
Foundry coke	$2.90 to 3.25	$2.90 to 3.25
Furnace coke	2.50 to 2.75	2.50 to 2.75
Wise county district:		
Foundry coke	$2.75 to 3.25	2.75 to 3.25
Furnace coke	2.40 to 2.65	2.40 to 2.65
Pocahontas district:		
Foundry coke	$2.40 to 2.75	$2.40 to 2.75
Furnace coke	2.35 to 2.60	2.35 to 2.60
New River:		
Foundry coke	$2.90 to 3.35	$3.15 to 3.50
Furnace coke	2.40 to 2.75	2.40 to 2.75

Finished Material.—The local sheet mill is still holding firm at 3.30c for galvanized No. 28 sheets, and at 2.15c, for black sheets, No. 28 gage, Pittsburgh basis, and is not soliciting business, having recently refused several good orders. The inquiry remains good, and specifications are coming in in good order. Steel bars are 1.35c, and structurals 1.40c, Pittsburgh, for first half delivery, but the majority of the offices of both the large eastern and local makers are not trying to make many sales.

Because of the constantly diminishing stocks and the difficulty in replenishing them, local warehouses can not supply the demand, which is exceptionally good along some lines. Prices continue to be advanced, and concrete bars, plates and structurals are being quoted a little higher than last week by most of the dealers. We quote warehouse prices f. o. b. Cincinnati as follows:

Steel bars, 1.95c, base; iron bars, 1.85c, base; structurals, 2.05c, base; plates, ¼ inch and over, 2.05c, base; sheets, blue annealed No. 10, 2.25c, base; rivets, cone head, 2.35c, base; cold rolled shafting, 58 per cent discount; boiler tubes as follows: 1¾ to 2¼ inch, 60 per cent discount; 2¼ inch, 62 per cent discount; 2¾ to 3¼ inch, 65 per cent discount; 3½ to 4½ inch, 67 per cent discount; and 5 to 6 inch, 60 per cent discount; soft steel cold twisted concrete bars, cut to length as follows: ¾ inch square and larger, 2.10c; ⅝ inch square and larger, 2.20c; ½ inch square and larger, 2.30c; 5-16 to ⅜ inch square and larger, 2.50c; ¼ inch square and larger, 2.60c.

Old Material.—In accordance with the increasing demand, scrap iron dealers are gradually advancing their prices and replenishing their stocks. Machine shop and heavy turnings, cast borings and stove plate have all been advanced 25 cents per net ton within the past few days, and heavy melting scrap is now given at from $11 to $11.50 per gross ton. We quote below prices dealers will pay and also dealers' selling prices in Cincinnati and vicinity as follows:

Gross Tons

Old iron rails	$13.25 to 13.75
Old steel rerolling	11.25 to 11.75
Old iron axles	17.75 to 18.25
Heavy melting scrap	11.00 to 11.50
Relaying rails	20.50 to 21.25
Bundled sheet scrap	8.25 to 8.75

Net Tons

Old No. 1 R. R. wrought	$10.75 to 11.25
No. 1 machinery cast	11.25 to 11.75
No. 1 busheling	9.00 to 9.50
Stove plate	8.75 to 9.25
Mach. shop turnings	7.00 to 7.50
Cast borings	7.25 to 7.75
Heavy turnings	7.50 to 8.00
Mixed cast	9.50 to 10.00
Malleable	7.50 to 8.00

PHILADELPHIA

Mills Booking Heavily at High Prices

Office of THE IRON TRADE REVIEW,
Philadelphia, Sept. 24.

Active markets and advancing prices tell one story of unabated prosperity in the eastern industry. Eastern plate makers are having no difficulty to book round tonnages for this year at recently advanced schedules, which are $2 to $5 over the nominal official market. Steel bars are less freely offered at 1.35c. Bar iron is rising. A heavy demand for forge and lower grades has developed in the iron market and shortages of these grades this year are not improbable. Iron prices are hard and still advancing. Scrap is easier in some grades but shows strength.

Pig Iron.—Demand for lower grades of pig iron has continued to appear in a heavier volume and as much of this tonnage is sought for this year, the probabilities of a shortage in forge and low silicon metal are quite marked. Standard forge for last quarter has been done at $16, delivered eastern Pennsylvania, one sale of 2,000 tons on this basis being noted. Now producers generally want advances and $16.25, delivered, is quoted by several makers on both northern and southern iron. Practically all the Delaware river, other eastern Pennsylvania and the Virginia cast iron pipe makers are now in the market formally or informally. One eastern shop is out for 5,000 tons of No. 2 plain and forge, this year; another for 5,000 tons No. 3 and forge for last quarter; a third consumer is shopping about for 2,000 tons or more for early delivery and a Schuylkill valley pipe foundry is also soliciting prices on any definite tonnage. In Virginia, one pipe maker wants 3,000 tons of No. 3 for first quarter and another 1,500 tons of Nos. 3 and 4 and forge for this year. An eastern Pennsylvania finished iron manufacturer who was inquiring for 5,000 tons of standard forge for this year has satisfied this requirement. The Norfolk & Western railroad is out for about 1,500 tons of Nos. 1, 2 and 3, 600 tons of Bessemer and about 1,500 tons of charcoal for first quarter, Roanoke delivery. Standard eastern Pennsylvania No. 2X is held at $16.75 to $17, delivered Philadelphia and vicinity, for this year and one Lehigh valley maker is quoting $17.25. For first quarter the market is about $17.25, delivered. The Baldwin Locomotive Works is understood to have closed its inquiry for 3,000 to 5,000 tons of No. 2X for first quarter with eastern makers. Virginia iron for this year is quoted at $14.50 to $14.75, furnace, for No. 2X and $15 for first quarter or half. A sale of 800 tons of Virginia No. 2X for first quarter to a Virginia consumer is noted. A leading Lebanon maker of low phosphorus iron has withdrawn from the market entirely, having sold heavily. The Robesonia furnace has also gone out for repairs. An eastern Pennsylvania steel castings company has taken 1,000 tons of Lebanon low phosphorus at $19, delivered, or about $18.50, furnace. Basic iron is quiet but strong. A report that a sale has been made for this year at $16, delivered, is given little credence in the trade since the figure is below the last previous sale for last quarter done at $16.25, delivered. On first quarter makers generally quote $16.50, delivered, and some ask this price for this year.

We quote for prompt and last quarter shipment at Philadelphia and vicinity as follows:

Eastern Pa. No. 1X foundry	$17.00 to 17.25
Eastern Pa. No. 2X foundry	16.75 to 17.00
Eastern Pa. No. 2 plain	16.25 to 16.50
Standard gray forge	16.00 to 16.25
Basic (Eastern and Central Pa.)	16.25 to 16.50
Virginia No. 2X	17.00 to 17.25
Southern No. 2	16.50 to 17.50
Malleable	17.00 to 17.25

(First Quarter.)

Malleable	$17.25 to 17.50
Basic	16.50
Eastern Pa. No. 2X foundry	16.75 to 17.25
Eastern Pa. No. 2 plain	16.50 to 16.75

Finished Material.—Further evidence of the strength of the finished material market is reflected in the liberal bookings of leading eastern plate mills at the recently advanced schedule. One of the makers who is quoting 1.65c, Philadelphia and vicinity, for immediate, 1.75c for November and 1.80c for November and 1.80c for December, or 1.50c, 1.60c and 1.65c, Pittsburgh, respectively, with equivalent mill prices for western shipment on sheared plate, with $1 higher for universals, has been entering new business heavily on this basis. One eastern bar iron maker continues to advance and the minimum of the market is now 1.40c, mill, or 1.47½c, Philadelphia, with some producers quoting 1.50c.

Blue annealed sheets continue to be quoted by eastern makers at 1.70c, Pittsburgh, or 1.85c, Philadelphia, for No. 10 gage, or $2 to $3 above the official schedule and they are booking business freely on this basis.

Philadelphia warehouse prices continue to rise and some companies are quoting 2.15c on plates and shapes. The general range, however, continues about 1.95c to 2c on plates, shapes and bars. A Pacific coast buyer took 3,000 tons, a Portland consumer 1,800 tons and wanted to contract for 1,000 tons additional at the western schedule. This mill is now receiving the heaviest tonnage of orders in its history.

On structural shapes, eastern makers generally quote 1.50c, Pittsburgh, or 1.65c, Philadelphia. On mill stock shipments, one maker has advanced to 1.85c, mill. First quarter offerings of steel bars at 1.45c, Pittsburgh, or 1.60c, Philadelphia, are more limited and the market is moving to a 1.40c, Pittsburgh base.

Bids will be taken Oct. 18, on 3,500 tons for shop buildings at Balboa, Panama canal, and are going in this week on 800 tons additional for locks for the canal. The Bush & Bull store, Easton, Pa., will probably go concrete. The Bethlehem Steel Co. will furnish 1,100 tons of steel to the fabricator for the new amusement pier at Atlantic City.

We quote delivered at buyers' plants in Philadelphia and vicinity as follows:

Plain structural shapes, 1.55c to 1.65c; tank plates, 1.55c to 1.65c; steel bars, 1.45c to 1.50c; common bar iron, 1.42½c to 1.47½c; cut nails, 1.80c to 1.85c; blue annealed sheets, No. 10 gage, 1.70c to 1.80c; 4 x 4-inch open-hearth rolling billets, $26.40 to $26.90; forging billets, $30.40 to $31.40. Extras shown under Pittsburgh report. Philadelphia warehouse prices 1.90c to 2.00c for steel bars, plates and shapes.

Old Material.—Scrap conditions in eastern Pennsylvania manifest a somewhat easier tone. With the steel makers out of the market at present,

holders of heavy steel are more inclined to accept $14.50 delivered from merchants to fill recent orders though they were asking $14.75 and $15, delivered, a week or more ago. Turnings are weaker because of the failure of an expected movement to the steel makers to be realized, and $10.75 delivered has been done and on forced sale as low as $10.50. Borings, however, show strength and have brought $10.75, delivered. Wrought pipe is in demand and better prices generally in wrought scrap are indicated by the more profitable operations of the iron mills. An embargo in in force against the plant of the Eastern Steel Co., Pottsville, Pa.

We quote gross tons delivered in eastern Pennsylvania and western New Jersey as follows:

Old iron rails	$17.00 to 18.00
Old steel rails (rerolling)	16.00 to 16.75
No. 1 heavy melting steel	14.50 to 15.00
Old car wheels	14.50 to 15.00
Old iron axles	24.00 to 25.00
Old steel axles	18.00 to 18.50
No. 1 railroad wrought	16.50 to 17.00
Wrought pipe	13.25 to 13.75
Cast borings	10.25 to 10.75
Machine shop turnings	10.75 to 11.25
Heavy cast	13.75 to 14.25
Malleable	12.50 to 13.00
Stove plate	10.75 to 11.25
No. 1 forge	12.75 to 13.25
Low phosphorus	17.50 to 18.00

Freight rates per ton on scrap from Philadelphia to principal eastern consuming points are: $0.60 to Ivy Rock, Pa.; $0.65 to Phoenixville, Pa.; $0.80 to Coatesville, Pa.; $0.85 to Bethlehem, Pa., Reading, Pa., and Roebling, N. J., $1.10 to Pottsville, Pa.; Lebanon, Pa., and Columbia, Pa.; $1.20 to Harrisburg and Steelton, Pa.; $1.40 to Milton, Pa.

ST. LOUIS

Pig Iron Quiet—Heavy Buying Expected

Office of THE IRON TRADE REVIEW,
St. Louis, Sept. 24

Pig Iron.—Sales agents in the St. Louis territory believe the buying movement in pig iron has hardly begun, and that the volume of business will increase considerably from now on, with an advance in prices. Business is quiet today, but there is an inquiry in the market for 10,000 tons of basic pig, which may be closed within a few days. Sales last week totaled about 9,000 tons, including 300 tons of northern, 3,000 tons of southern No. 2, 1,000 tons of malleable and about 4,700 tons in scattering orders. While there may be some southern No. 2 left at $13 for spot delivery, or even delivery over the last quarter, a majority of agents have been instructed to quote nothing less than $13.50 for this year and first quarter, and in some instances $14 is the best that could be done for first quarter.

Our tabulated prices for southern iron, delivered, to which the Birmingham freight of $3.75 has been added, follow:

Southern No. 1	$17.25 to 17.75
Southern No. 2	16.75 to 17.25
Southern No. 3	16.25 to 16.75
Southern No. 4	15.75 to 16.25

Coke.—While there is very little doing in coke, prices are firm, as follows:

We quote 72-hour Connellsville foundry grades, $2.75 for immediate shipment or delivery through the year; 48-hour Connellsville furnace, $2.35 to $2.50; best 72-hour Virginia foundry, $2.50 to $2.75; 48-hour Virginia furnace, $2.25 to $2.40. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Finished Material.—A large car works at St. Louis is in the market for 200 tons of steel for a mill building; a milling company is asking for prices on a building that will require about 500 tons of steel, and the Cotton Belt has placed an order for a $5,000 turntable at Jonesboro, Ark.

Old Material.—The mills are all after material and dealers are behind with orders, while prices show a tendency to advance in some instances. All grades of scrap are in demand from both the rolling mills and steel foundries. Relaying rails are in active demand because of the inability of the mills to furnish new material, and an advance of $1 in prices is expected within the next 15 days.

Our quotations, which dealers are willing to pay f. o. b., St. Louis, follow:

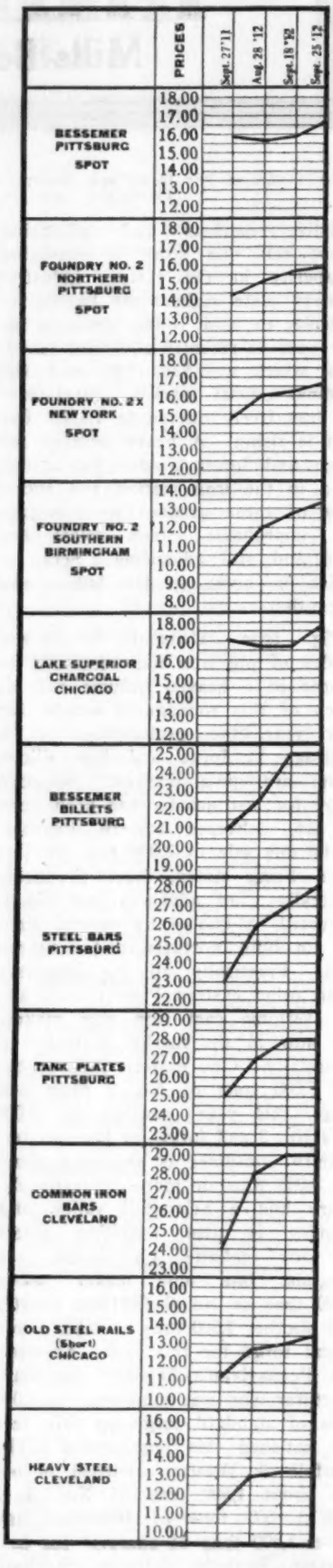
Gross Tons.

Old car wheels	$15.50 to 16.00
Old iron rails	15.00 to 15.50
Rerolling rails (5 feet and over)	13.50 to 14.00
Old steel rails (3 feet and und.)	12.00 to 12.50
Light section relayers (45 lbs. and under, subject to inspec.)	23.00 to 23.50
Relaying rails, subject to insp.	23.00 to 23.50
Frogs, switches and guards cut apart	12.00 to 12.50
Heavy melting steel	13.00 to 13.50
Shoveling steel	12.50 to 13.00

Net Tons.

No. 1 railroad wrought	$12.00 to 12.50
No. 2 railroad wrought	11.50 to 12.00
Arch bars and transoms	15.00 to 15.50
Knuckles, couplers and springs.	11.50 to 12.00
Shafting	17.00 to 17.50
Iron car axles	19.50 to 20.00
Steel car axles	17.00 to 17.50
Locomotive tires	13.25 to 13.75
No. 1 country wrought	10.00 to 10.50
Pipes and flues	9.50 to 10.00
Tank iron and cut boilers	8.50 to 9.00
No. 1 cut busheling	9.50 to 10.00
No. 2 cut busheling	9.00 to 9.50
Cast and mixed borings	6.75 to 7.25
Machine shop turnings	8.25 to 8.75
Railroad malleable	11.25 to 11.75
Agricultural malleable	10.00 to 10.50
Stove plates	9.50 to 10.00
Angle splice bars (iron)	12.00 to 12.50
Angle splice bars (steel)	10.00 to 10.50

PRICE CHART



NEW YORK

Scarcity of Ships Affects Ore Situation

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., Sept. 24.

Iron Ore.—The trans-Atlantic ore situation remains practically at a standstill as far as eastern furnaces are concerned. Foreign ores of high iron content are not available at present except at prohibitive prices because of the better market abroad and the strong ocean freights. The high level of ocean freights is shown by charters of steamers from Poti to Philadelphia and Baltimore at 17s 6d, and from Bombay at 27s on manganese ore. The scarcity of ocean bottoms also applies to Cuban shipments where, on requisition for 40,000 tons last month, transportation for only 17,000 tons was obtained. The present outlook is that excepting local supplies and Lake Superior, the east may face an ore shortage. Eastern furnaces which have sought additional lots of lake ore for this year have been disappointed because labor shortages have curtailed the output of certain mines. Additional sales of about 20,000 tons of Wabana ore are on verge of closing.

Pig Iron.—New business in pig iron has continued along moderate lines the past week, as small sized inquiries now make up most of the moving tonnage. The quieter market is looked upon as the natural development after the recent heavy buying and prices show no signs of weakening; in fact, the advancing movement still continues, though it is at a slower pace. In eastern Pennsylvania, the present minimum for this year's market remains $16.00, furnace, for No. 2X or $16.70 to $17.00, tidewater. One Lehigh Valley maker has gone to $16.50 for this year. For first quarter, $16.50, furnace, is generally quoted. Central Pennsylvania No. 2X is held at a minimum of $15.25, furnace. Virginia iron rules at $15.00, furnace, for No. 2X for next year and slightly lower for this year. Some Buffalo makers, who are holding to a schedule of $16.00, furnace, for No. 2X for first quarter and first half, have made sales on this basis. For shipment by water, Buffalo No. 2X has sold at $16.25, furnace, equivalent to about $17.75, alongside this district. A sale of 2,500 tons of No. 2X to a buyer in the metropolitan district on this basis is noted. Upstate radiator manufacturers have been the purchasers against an inquiry for 30,000 tons of foundry grades for first half referred to last week. This business was awarded Buffalo makers. A Connecticut consumer continues out for 1,000 to 2,000 tons of No. 2X for first quarter and a New England buyer for about 1,000 tons of special low phosphorus. Competitive New England No. 2X prices now range from $17.60 to $17.90, delivered. The leading maker of Lebanon low phosphorus iron is sold up for this year and has withdrawn from the market. It declines to quote on first quarter. The Republic Iron & Steel Co. has declined offers of 8,000 to 10,000 tons of southern for second quarter at $14.50, furnace, with only 25 cents differentials for lower grades. This maker and other leading southern producers have not yet opened their second quarter books. When they do, it is predicted that the minimum will not be less than $14.50 for No. 2. The Sloss-Sheffield Steel & Iron Co. has advanced for this year from $13.00 to $13.25 for No. 2. Scarcity of labor is keeping down eastern furnace operation. The Thomas Iron Co. has two furnaces ready to resume, but is unable to get the labor to operate them. We quote for prompt and last quarter shipment at tidewater, as follows:

Northern foundry No. 1	$16.70 to 16.95
Northern No. 2X foundry	16.50 to 16.70
Northern No. 2 plain	16.25 to 16.50
No. 2X Virginia	17.25 to 17.50
No. 2 southern foundry	17.00 to 17.50
Malleable	17.00 to 17.25
Gray forge	15.75 to 16.00
(First Quarter.)	
Northern No. 2X foundry	$16.70 to 17.20
Northern 2 plain	16.25 to 16.70
No. 2X Virginia	17.50
No. 2 Southern	17.50 to 18.00

Ferro-Alloys.—Irregularity in prices of forward ferro-manganese was still to be noted in the market during the past week and several transactions were put through below $56.50, seaboard, the accepted minimum of the market after the recent advance. Several buyers in the Pittsburgh district took about 1,500 tons for deliveries after Jan. 1 at prices ranging from $55.00 to slightly below $56.50, seaboard. The indications at present, however, are that the market has hardened to $56.50, minimum basis, and one seller is asking as high as $59.50. On small tonnages, offers of $57.00, seaboard, have been made by buyers. The spot market is nominally quoted on a minimum of $60.00, but one seller is holding for $75.00 and reports small offers at $70.00. Some sales at $62.50 are reported. Pending inquiry amounts to about 2,000 tons. An eastern buyer has taken 300 tons of spiegeleisen for this year at $30.00, seaboard. There is no change in 50 per cent ferro-silicon. We quote 80 per cent ferro-manganese at from $60.00 to $65.00 for early shipment and at $56.50 to $57.00, seaboard, for delivery after Jan. 1, and 50 per cent ferro-silicon at $72.50, Pittsburgh, for this year.

Cast Iron Pipe.—There is an unusually brisk buying by private consumers at this time of the year and some companies are endeavoring to cover for deliveries through to July, which the shops are not willing to do at present. Eastern makers continue to advance prices and one eastern Pennsylvania shop this week adopted a new schedule which equals about $24.50, New York, on 6-inch pipe. We quote 6-inch pipe from $23.00 to $24.00, f. o. b. New York, in carload lots.

Finished Material.—Leading steel bar producers, which recently announced prices of 1.35c for first quarter, have sold heavily on this basis and these bookings, together with considerable tonnage to be carried over into next year, have practically put them out of the market. In view of their recent experiences, many buyers are taking steps to insure their receiving prompt deliveries on contracts in the future. To this end some of them are offering 1.40c on steel bars for first half in the belief that their first quarter specifications will be more promptly filled than if they closed for the straight first quarter at a lower price. Some large independent makers have delayed the adoption for first quarter of the prices of 1.35c, Pittsburgh, on steel bars and 1.40c on plates and shapes and are following very conservative policies. This conservative attitude continues more marked among middle western mills. In the east with more free tonnage for this year to offer, producers are quoting from 1.40c to 1.50c, Pittsburgh, for shapes and from 1.45c to 1.50c, Pittsburgh, on plates for nearby shipment in the east. In some cases, even higher prices are being obtained. Bar iron shows firmness.

Considerable improvement is further manifested in fabricating prices. The average price level obtained on the

work now in some shops in the east is reported to be the highest in several years. New awards, however, are not extensive. Contracts are being closed for the new Arlington hotel, Washington, D. C., and the steel requirements, 5,500 tons, will be furnished by the American Bridge Co. The leading interest will also furnish 500 tons for a school of dentistry, University of Pennsylvania, Philadelphia. The Eastern Steel Co. has 500 tons for the A. M. Castle & Co. warehouse, Chicago; Mulcahy & Gibson, Inc., 500 tons to 600 tons for the Martin & Seaman garage, Fifty-seventh street, this city; Levering & Gerrigues, 350 tons for an addition to the Broad Street Exchange building, 41 Broad street, this city; the Virginia Bridge & Iron Co., 250 tons for a bridge for the Maryland Coal & Coke Co., at Empire, Ala. Bids have gone in for the steel work of the Eighth Artillery armory in the Bronx, this city, 8,000 tons, but no award has been announced. Railroad work in the east is confined to numerous inquiries for various small tonnage, the aggregate of which is very moderate. In the west, the Great Northern and the Northern Pacific railroads are in the market for considerable tonnages of bridge work. We quote, delivered New York tidewater, as follows:

Plain structural shapes, 1.56c to 1.66c; tank plates, 1.56c to 1.66c; steel bars, 1.46c to 1.51c; common iron bars, 1.40c to 1.45c; steel bars from store, New York delivery, 2.00c; plates and shapes from store, 2.15c; extras as shown under Pittsburgh report.

Rails and Track Material.—The principal development in the eastern rail market is the practical closing of its initial order for next year's delivery by the New York Central Lines. Though the tonnage is indefinite, as all requisitions are not yet complete, it will reach about 115,000 tons, or slightly higher than the first order last year. As usual, the major portion of this tonnage will go to the Lackawanna Steel Co. and the Steel Corporation mills. The New York Central railroad has also placed 10,000 tons additional for this year, of which 3,000 open-hearth went to the Lackawanna Steel Co. and 2,000 Mayari Bessemer to the Pennsylvania Steel. Of the Great Northern and Lackawanna railroad orders previously reported, the Pennsylvania Steel Co. will also supply 10,000 and 2,000 tons, respectively, of Mayari open-hearth rails.

Old Material.—Eastern scrap merchants continue to book a heavy tonnage of business, which in some cases exceeds the volume of 1907, but the margin of prices is considerably less. There is a good movement to the market at present in practically all grades, although the large eastern buyers of steel are now comfortably covered. Heavy steel continues quoted at about $15.00, eastern Pennsylvania. The quotations are practically unchanged, but are strong. An embargo has been declared against the plant of the Eastern Steel Co., Pottsville, Pa., but this is expected to be raised in a few days. We quote, gross tons, prices New York dealers will pay at tidewater, as follows:

Old car wheels	$11.75 to 12.00
Old iron axles	20.00 to 21.00
Steel axles	15.50 to 16.00
Old steel shafting	15.00 to 15.50
No. 1 heavy melting steel	12.75 to 13.00
No. 1 R. R. wrought	14.00 to 14.25
Wrought pipe	10.25 to 10.75
Cast borings	7.75 to 8.00
Machine shop turnings	8.75 to 9.00
Heavy cast	11.00 to 11.50
R. R. malleable	11.00 to 11.50
Stove plate	8.50 to 8.75
Grate bars	8.00 to 8.50

Freight rates on scrap per ton to Steelton, Pa., Columbia, Pa., Pottsville, Pa., and Harrisburg, Pa., are $1.50 from Jersey City, and $2.00 from New York; to Coatesville, Pa., Ivy Rock, Pa., Phoenixville, Pa., and Reading, Pa., $1.50 from Jersey City, and $1.80 from New York; to Bethlehem, Pa., $1.10 from Jersey City, and $1.60 from New York; to Roebling, N. J., $1.00 from Jersey City, and $1.50 from New York; to Milton, Pa., $1.60 from Jersey City, and $2.00 from New York; to Jersey City, $1.00 from New York; to Newark, $1.10 from New York.

BUFFALO

Heavy Sales of Pig—Prices Higher

Office of THE IRON TRADE REVIEW,
Buffalo, Sept. 24.

Pig Iron.—The furnaces of the district booked during the week fully 75,000 tons, in mostly moderate quantity orders, covering all grades and a large number of buyers, brought into the market by a tide of purchasing absolutely devoid of even a trace of excitement, are seeking requirements up to the end of the first half of 1913. In addition to this strong influx, there remains a heavy inquiry to be satisfied. The demand caused prices to stiffen and within the past two days to advance to a higher level, now on the verge of $17 iron. The established minimum is now $16.50, on No. 1X; and $16.25, on No. 2X, basic and malleable. The furnaces are being crowded by insistent specifying. There remain a large number of buyers not covered for the first and second quarters of next year, and some not yet covered for the remainder of this year. In the face of this situation, the booking has been of such volume that all but a limited quantity of iron remains to be sold to virtually close the furnace books for requirements up to July 1.

The Tonawanda Iron & Steel Co.'s Niagara furnace will put in blast stack B next week, with stack A to follow later. Both will go in with well filled order books.

The range for the week, f. o. b. Buffalo, is as follows:

No. 1X foundry	$16.50 to 16.75
No. 2X foundry	16.25 to 16.50
No. 2 plain	16.00 to 16.25
No. 3 foundry	15.75 to 16.00
Gray forge	15.75 to 16.00
Malleable	16.25 to 16.50
Basic	16.25 to 16.50
*Charcoal	17.50 to 18.50
*Some grades and brands	21.50

Finished Material.—Prices are firmly established at 1.35c, base, on bars and small shapes, and 1.45c, base, on structural and plates, and these figures are being quoted only upon limited tonnages to the established customers of the mills in the district, for first quarter requirements. The makers are so thoroughly sold up and deliveries so extended that in many instances contract customers are able to place in this way, but a half and more often but a quarter of their needs. More tonnage is being turned down than accepted. Several interests within the current month have refused to book offered orders amounting in volume to more than the total bookings of these mills for the last quarter of 1911. One independent interest, in addition to selecting the business it will accept for first quarter delivery, has fixed its minimum at 1.40c, base, on bars, and 1.50c, base, on structural and plate.

The Buffalo Structural Steel Co. secured the contract for the steel in the Curtis building, Buffalo, Paul E. Mann, architect, requiring 750 tons.

Architect Ulysses G. Orr, Buffalo, is preparing plans for a seven-story commercial building, 185 x 200 feet, to be erected in the spring by the Poppenberg Co., Buffalo, requiring 1,500 tons.

Old Material.—The local consumers, who have been holding off for a softening of prices, came to the terms of the dealers during the week, causing considerable activity in the buying of nearly all the lines. The scrap yards followed this development with a further stiffening of prices. Most of the buying done, while considerable in the aggregate, was in small lots. The schedule for the week, per gross ton, f. o. b. Buffalo, is as follows:

Heavy melting steel	$14.00 to 14.25
No. 1 railroad wrought scrap	14.00 to 14.50
No. 1 R. R. and mch. cast sc'p	13.75 to 14.25
Old steel axles	16.00 to 16.75
Iron axles	23.00 to 23.75
Car wheels	14.75 to 15.25
Railroad malleable scrap	13.25 to 13.50
Wr'ght iron and soft steel turn.	8.25 to 8.75
Cast iron borings	7.75 to 8.25
Low phosphorus steel scrap	16.50 to 17.00
Old iron rails	15.25 to 15.75
Tank iron	10.50 to 10.75
Boiler plate, sheared	14.50 to 15.00
Pipe and tank	10.00 to 10.50
Stove plate	11.25 to 11.75
Sheet iron	7.25 to 7.75
Locomotive grate bars	11.50 to 12.00

BIRMINGHAM

Moderate Sales at Good Prices

Office of THE IRON TRADE REVIEW, Birmingham, Ala., Sept. 24.

Pig Iron.—The transactions reported in this market for the week just ended involve lots of 250 to 300 tons each, as a rule, with the aggregate amount sold some 5,000 to 6,000 tons. In the sales reported, a basis of $13.50 per ton at Birmingham for No. 2 foundry was the price consideration, with the differential of 25 cents per ton fully maintained for the lower grades. The bulk of the tonnage sold is for delivery this year, the exception covering the first quarter only. A small lot of high silicon iron for spot shipment sold in the week at $14 per ton at Birmingham. The situation in so far as advanced deliveries are concerned has not changed. Two of the leading producing interests continue practically out of the market for any delivery, and two additional concerns now adhere strictly to a basis of $13.50 per ton for any delivery prior to the beginning of the second quarter. A firm offer for 5,000 tons of Nos. 2, 3 and 4 foundry, for shipment in the second quarter, is under consideration at $14 per ton for No. 2 foundry, and a differential of 25 cents per ton on that price for the lower grades, but it is not understood that any order books have been formally opened for such commitments. As has been stated, one additional furnace is to be blown in on foundry iron around Oct. 1, and a recent announcement indicates that still an additional stack will be put in blast about Oct. 15. The output from both additions mentioned is now being offered, and represents the bulk of the available tonnage for delivery prior to Jan. 1 at least. It is noted that the calls for delivery against contracts have been larger in volume so far this month than in August, and that a significant tonnage has recently been sold on a spot market. For delivery this year, and through the first quarter of next year, the market is quoted as below per gross ton, f. o. b. cars here, viz.:

For delivery during the remainder of the year:

No. 1 foundry	$13.50 to 14.00
No. 2 foundry	13.00 to 13.50
No. 3 foundry	12.50 to 13.00
No. 4 foundry	12.00 to 12.50
Gray forge	11.50 to 12.00
Mottled	11.00 to 11.50
Standard basic	12.50 to 13.00
Off basic	11.00 to 11.50
Standard charcoal	22.50 to 23.00

With the exception of charcoal iron, an advance of 25c to 50c per ton would be asked over the above figures for deliveries in the last quarter.

Cast Iron Pipe.—The aggregate of specifications recently received is some 10,000 to 12,000 tons, in which the largest requirement is that of Omaha, which is for 5,500 tons. Of the smaller lots placed, 900 tons are for Weiser, Idaho; 600 tons for Pasco, Wash.; 400 tons for Stockton, Cal., and 400 tons for Seattle, Wash. Incident to this market, the recent announcement from Anniston, Ala., to the effect that the McWane interests of Lynchburg, Va., will erect a plant there with an output of some 250 tons per day, is very significant. At present, all of the capacity in this district is in full operation, and the only idle southern capacity that is reported is the plant at Sheffield, Ala., which has been out of commission for some months. The schedule of asking prices as last revised is being fully maintained, and with all operations well supplied with orders, the market is considered very firm. Water pipe is quoted as follows, per net ton, f. o. b. cars here: 4-inch, $24.50; 6-inch, and up, $22.50, with $1 per ton extra for gas pipe.

Old Material.—Dealers continue to add to their holdings where practicable, but the movement to consumers has not increased appreciably, owing to the prices being asked. The inquiry being received is in rather large volume, especially for light cast and busheling scrap. The prices dealers are asking for their holdings are about as follows, per gross ton, f. o. b. cars here:

Old iron axles (light)	$15.50 to 16.00
Old steel axles (light)	13.50 to 14.00
Old iron rails	13.00 to 14.00
No. 1 R. R. wrought	12.00 to 12.50
No. 2 R. R. wrought	10.50 to 11.00
No. 1 country	8.50 to 9.00
No. 2 country	7.50 to 8.00
No. 1 machinery	10.50 to 11.00
No. 1 steel	10.00 to 10.50
Tram car wheels	9.00 to 9.50
Standard car wheels	12.00 to 12.50
Light cast and stove plate	8.50 to 9.00

BRITISH MARKET

Pig Iron Rises and Steel is Scarce

Office of THE IRON TRADE REVIEW, Prince's Chambers, Corporation St., Birmingham, Eng., Sept. 14.

Pig Iron.—The upward movement in pig iron has been more than maintained this week. Towards the end of the week, the good news from America, of buoyant markets, strongly stimulated prices. Yesterday Cleveland iron advanced 6d per ton, and every day there has been some little advance. The latest quotation is 66s 6d ($16.28) for Cleveland warrants, with 66s 8d ($16.32) one month and 66s 10d ($16.26) three months. Stocks continue to reduce, the amount now being 284,000 tons. There are confident predictions that prices will reach 70s ($17.14) before the crest of the wave is reached. The market has been strengthened by improving demands from the continent, where, for some time, there has not been much buying of British material. Even Germany is now a buyer, and recent advices to America have encouraged the hope that trans-Atlantic business may be done. Undoubtedly production is increasing in Cleveland, and prices must have weakened but for the increasing demand. The market is strengthened by the scarcity of coke, which is still strongly demanded. The present prices are the best for 12 years.

Finished Material.—In the finished departments, there is no branch of the trade but is making, at the present time, record outputs. The railways are almost completely beaten in handling traffic, and every important wagon builder has a year's work on his books. Makers of armament steel are much more heavily committed, and orders still tend upward. The demand for half-finished steel has gone beyond the supply, and Sheffield houses are arranging to increase their production of Siemens steel by the erection of new furnaces. A noteworthy feature of the Sheffield business is an improving demand from America for the highest qualities of Sheffield steel, while Germany is an improving buyer. Most strenuous efforts are being made to increase the steel output, and some big hydraulic installations are being put down. The market for finished steel is rather firmer. For all structural requirements, business is increasing, so many building erections and enlargements being in progress.

METAL MARKETS

Copper Stronger—Tin Makes New Record

Chicago

Sept. 23.

New Metals.—The demand for new metals is very heavy and quotations in general are higher, casting copper, however, being quoted at 17⅝c as against 17¾c a week ago. Spelter is quoted 15 points higher and increasing strength is shown in pig tin and antimony.

We quote, dealers' selling prices, f. o. b. Chicago, as follows:

Lake copper, carload lots, 17½c; casting, 17⅝c; smaller lots, ¼c to ¾c higher. Spelter, car lots, 7.55c; lead, desilverized, 5.05c; sheet zinc, 8.90c, f. o. b. Lasalle, in car lots of 600-pound casks; pig tin, 50.10c; Cookson's antimony, 8¾c; other grades, 8¼c.

Old Metals.—Manufacturers in this territory are doing considerable buying to replenish stocks and the consumption of old metals is increasing. Some consumers are having difficulty in keeping pace with the increases in business, which necessitate the consumption of non-ferrous scrap. Prices are very firm and dealers express gratification concerning present conditions.

We quote, dealers' selling prices, f. o. b. Chicago, as follows:

Copper wire, crucible shapes, 16¾c; copper bottoms, 14c; heavy red brass, 12¾c; heavy yellow brass, 10c; No. 1 red brass borings, 11½c; No. 1 yellow brass borings, 9c; brass clippings, 10½c; lead pipe, 4⅝c; zinc scrap, 5¼c; tea lead, 4⅜c; No. 1 aluminum, 16c; No. 1 pewter, 32c; block tin pipe, 42c; tin foil, 40c; linotype dross, 3½c; electrotype dross, 3¼c; stereotype plates, 4¾c; stereotype dross, 3½c; prime slab zinc dross, $100 a ton.

New York

Sept. 24.

Copper.—Following a cessation in demand a week or two ago, this metal has resumed activity with a slight gain in strength. Electrolytic may be quoted at 17.75c, cash. Producers are taking some December business at this price. Lake is strong at 17.75c, cash, and is well sold up to December. Casting is quoted at 17.50c. Little copper appears to be in second hands. Today's closing price in London was £78 17s 6d for spot and £79 17s 6d for three months, compared with £78 5s for spot and £79 2s 6d for three months a week ago. Copper exports since Sept. 1 are 19,203.

Tin.—Following the slight reaction which occurred during the early part of last week, this market is again advancing consistently, the present level surpassing all previous records. Today's close in London was £227 10s for spot and £225 10s for three months, compared with £222 for spot and £218 15s for three months a week ago. Today's closing price in New York was 49.82½c, representing actual sales, compared with 48.20c bid and 48.47½c asked a week ago. Numerous transactions have been recorded recently at over 50c. Tin arrivals since the first of the month are 3,311 tons, while tin afloat is 2,450 tons.

Lead.—The market is very strong and unchanged at 5.10c. Deliveries are slow and prompt shipment is very scarce.

Spelter.—Not much spot spelter is obtainable in New York at present, and it is very hard to obtain an actual quotation. The market for prime western brands, New York delivery, may be quoted at about 7.75c. Demand is heavy.

Antimony.—This metal continues to gather strength and Cookson's this morning was quoted at 9.25c. This figure is still nominal. Hallett's is held at 8.87½c, and Hungarian and Chinese at 8.75c.

Receiver Appointed for Blast Furnace Company

St. Louis, Mo., Sept. 25. By wire.)—Isaac H. Orr, trust officer of the St. Louis Union Trust Co., was appointed receiver for the St. Louis Blast Furnace Co. by United States District Judge Dyer, Tuesday. The appointment was made upon application of Whitney-Kemmerer Co., Philadelphia, holder of $4,000 of bonds issued by the Blast Furnace company, which has an indebtedness of about $260,000 in outstanding bonds. The plant has been idle about one year. Arthur C. Decamp is president of the company.

Collapsed on Works.—The Beaver Dam Malleable Iron Co., Beaver Dam, Wis., sustained a loss of $2,000 on Sept. 14, when the main steel stack collapsed and badly damaged the roof. The building caught fire, but was saved from destruction. Another stack collapsed last spring, and did considerable damage. The reason for the collapse is said to be settling of the foundations, which were constructed during the extreme cold weather of last winter.

ANNUAL REPORT

Of Virginia Iron, Coal & Coke Co., Presented.

The annual report of the Virginia Iron, Coal & Coke Co. for the fiscal year ended June 30, has been presented. The financial statement follows:

	1912.	1911.	Decrease.
Gross rev.....	$2 893,214	3,370,923	477,709
Op. ex.....	2,614,697	3,034,688	419,991
Net profit....	278,517	336,235	57,718
Other inc.....	33,642	35,505	1,863
Total inc.....	312 159	371,741	59,582
Charges, etc....	685,199	634,527	*50,672
Loss for year	373,040	262,787	*110,253

*Increase.

In his notice to stockholders, President John B. Newton says: "The past year has not been unlike the two preceding years in the iron industry. The problem before your management has been to operate on the most economical basis possible, and, at the same time, keep up the efficiency of your plants in order to be prepared to reap the benefits of improved conditions in the iron market when they come. The efficiency of your plants has certainly been maintained, and examination of the statements included in this report will show that liberal charges have been made against depreciation of plant and equipment and against depreciation of iron ore lands and coal lands, amounting in the aggregate to $320,808.80, and that $149,696.09 have been expended in improvements.

"Within the past 60 days the iron market has shown marked improvement, and, at the present time, there is a strong demand for iron at fairly remunerative prices. We now have orders on our books amounting to 62,000 tons of iron, the most of which is for delivery between now and Jan. 1, and are booking a fair tonnage daily for delivery during the first three months of 1913. We are, on this date, operating one charcoal and two coke furnaces; will blow in Radford furnace within the next 10 days and our Pulaski furnace as soon as practicable. We have large stocks of ore on hand at our different furnaces, and are well prepared to meet the increase in demand for iron."

Allied Foundrymen's Associations Meet at Buffalo

Papers Cover Many Subjects—Splendid Exhibition of Foundry Equipment at Broadway Arsenal—Great Increase in Pig Iron Production Along Lakes

The early sessions of the conventions of the allied foundrymen's associations, which are being held in Buffalo this week, included the presentation of a striking group of papers covering a wide range of subjects. The questions of efficiency and economy in foundry operations are receiving more and more attention year by year and the influence of mechanical foundry appliances in this connection is especially noteworthy. The importance of this subject is evident from a survey of the list of papers read at the Buffalo meetings.

The professional sessions of the convention were opened Tuesday morning by a joint meeting, in which the American Foundrymen's Association, the American Institute of Metals and the Associated Foundry Foremen participated. The proceedings were opened by Mayor Louis P. Fuhrmann, of Buffalo, who welcomed the members of the three associations and turned over the keys of the city to Major Speer, president of the American Foundrymen's Association. Mayor Fuhrmann's address was supplemented by a few remarks by O. E. Yeager, president of the Buffalo Chamber of Commerce. A response to these addresses on behalf of the allied associations was made by A. E. Howell, of Nashville, Tenn., vice president of the American Foundrymen's Association.

In a brief presidential address, Major Joseph T. Speer recommended the appointment of a committee to change the by-laws so that more effective co-operation between the various foundrymen's organizations would be possible. He also suggested that the Association consider the problem of providing suitable funds for carrying on its special work, and indicated that this might be worked out by increasing the membership. Upon a motion in response to President Speer's suggestion, a committee of seven headed by R. A. Bull, of the Commonwealth Steel Co., St. Louis, was appointed to revise the by-laws.

Secretary Richard Moldenke reported that the membership had been maintained in spite of many resignations resulting from the recent business depression. His report will be found on page 596 of this issue.

The report of the committee on Standard Methods of Sampling and Analysis of Foundry Coke, which was first published a year ago, was formally accepted by the Association.

Industrial Education

The report of the committee on Industrial Education was also presented at the Tuesday morning session. Paul Kreuzpointner, chairman of the committee, urged that steps be taken to insure more effective co-operation between the business men of the various communities and the local boards of education, with the object of establishing industrial continuation schools. He decried the influence of politics which is used in many localities to thwart the advance of industrial education. He concluded with a strong plea for liberal support of public industrial schools, both by manufacturers and others, in order to maintain the industrial supremacy of this country.

The Tuesday afternoon session of the A. F. A. opened with the presentation of an exhaustive paper on Malleable Cast Iron and the Open-Hearth Furnace, by G. A. Blume, of Stockholm, Sweden.

Following this, C. H. Gale, of Pittsburgh, read a paper entitled, "Memorandum on Titanium in Malleable Castings Practice". This paper gives in detail the results of a series of tests on malleable iron made in an open-hearth furnace and containing various quantities of titanium. A large portion of the tests seemed to indicate that the metal was better in its original state, while others tended to confirm the advantage of slight titanium additions.

An interesting paper on the economies resulting from continuous foundry operations was read by George K. Hooper, of New York City. "The advantageous results which have been attained by the use of the continuous method," said Mr. Hooper, "include a reduction in wages, in the number of men necessary for a given production and in floor space. Also the investment in small equipment and the foundry loss is decreased." This paper gives some interesting figures showing the savings accomplished by the continuous system, equivalent to 24.76 per cent interest on the necessary investment.

A very valuable paper entitled "The Foundry and the Pig Iron Market," was read by A. I. Findley, editor of *The Iron Age*, New York. In conclusion, Mr. Findley states: "The factor of first importance in the whole question of foundry iron supply and demand is the prodigious addition made in and since 1907 to the foundry iron capacity of the country. Of chief significance in this connection is the fact that in the lake cities, from Buffalo on the east to South Chicago on the west, such additions have brought the foundry capacity of these cities up to 3,000,000 tons a year. In other words, this cordon of 27 furnaces between the foot of Lake Michigan and the foot of Lake Erie now represents a capacity equal to half the consumption of foundry iron in the United States in the high record year. The question of supply, generally speaking and at a moderate level of prices, is therefore one about which foundrymen need have no early concern."

A paper covering the advantages of mechanical sand tempering, referring specially to the self-propelled sand cutting machine, was presented by V. E. Minich, of New York. In answer to a question, the author stated that it is not feasible at present to magnetize the machine so as to remove iron particles from the sand.

"Some Thoughts on the Problem of the Foundry", a paper by C. F. Dudley, of North Tonawanda, N. Y., precipitated considerable discussion on the subject of industrial education. President Speer said that in his foundry 15 per cent of the molders had been trained in the shop as apprentices, and 8 per cent of the skilled molders at work today are the sons of the preceding generation.

The Tuesday afternoon session of the A. F. A. was concluded by two papers illustrated with lantern slides. The first one, covering many applications of compressed air to foundry work, was read by Arthur F. Murray, of East Cambridge, Mass., and the second, discussing foundry heating and ventilation, was presented by W. H. Carrier, of Buffalo.

Associated Foundry Foremen

Tuesday evening nearly 200 members of the Associated Foundry Foremen assembled at the Iroquois hotel for their annual banquet. The courses of the repast were interspersed with lively songs and witty

toasts and the after-dinner program included able addresses and special music. Frank B. Baird, president of the Buffalo Union Furnace Co., was toastmaster. Charles Rolphs, of Buffalo, an ex-foundryman, but now a maker of artistic furniture, made an able speech on the "Romance of the Foundry Industry." He was followed by Rev. Ernest L. Waldorf, who spoke convincingly on the responsibilities of the foundry foreman. A number of other topics were covered in an interesting manner by other speakers.

The Exhibits

Broadway Arsenal, where the exhibition of foundry equipment and supplies is being held, has been converted into a model foundry in which every conceiveable labor-saving device has been installed. Practically the entire 47,000 square feet of floor space is occupied and the firms represented total nearly 100. The dedication of the rebuilt Arsenal and the formal opening of the show were two ceremonies which were combined on Monday evening. The building was dedicated by Mayor Louis P. Fuhrmann and Orson E. Yeager, president of the Buffalo Chamber of Commerce, welcomed the visitors on behalf of the business interests of the city. Reply was made by S. T. Johnston, first president of the Foundry Supply Association, which was succeeded several years ago by the Foundry & Machine Exhibition Co. In spite of the inclement weather, the attendance has been large and the exhibition will be open daily from 9 a. m. to 10 p. m.

The Institute of Metals

Professional sessions of the American Institute of Metals are being held at the Iroquois hotel. The report of Secretary W. M. Corse, presented at the first meeting, Tuesday afternoon, was particularly gratifying, as it showed a wholesome increase in membership during the year, the enrollment now aggregating 310. Arthur D. Little, Inc., official chemist of the society, presented a very interesting report which dealt with the developments in the non-ferrous casting industry during the last 12 months. Prof. C. L. Parsons addressed the members at considerable length on the work of the Bureau of Mines, as it relates to the non-ferrous metal industry. He said that the bureau is now making investigations which will lead to the greater conservation of materials and he believed that metal losses could be greatly reduced in plants engaged in the casting of brass and aluminum. An effort now is being made to ascertain the relative efficiency of the various types of brass melting furnaces now in use.

DECLINING STOCKS

In Pig Iron in Middle West Mark Increased Consumption.

A continued shrinkage of pig iron stocks on furnace banks has accompanied the recent sharp buying movement and the expanding production, clearly reflecting the increasing consumption that is now prevalent.

Stocks of all grades in makers' hands in the Pittsburgh, valley, Ohio, lake and adjacent middle western territory, exclusive of the Steel Corporation, dropped about 10,000 tons during the first half of September and for the first time in several years have fallen below the 500,000-ton mark. The accumulated iron of the Steel Corporation in the district is light and is below the quantity normally carried. Of the present stocks represented in the 500,000-ton block, fully 300,000 tons are in the hands of four companies, two of which are steel-making interests and two merchant sellers.

A great part of the iron in stock is already sold and is being carried for the buyers. This is particularly true of about 150,000 tons of Bessemer included in the stock statistics and the same statement applies to considerable portions of the basic, foundry and forge grades, so that the metal overhanging the market is comparatively moderate.

The condition of stocks in the middle western territory, which is by far the heaviest production center of the country, indicates that total iron stocks in the United States on furnace yards are hanging closely about the 1,000,000-ton mark, not an inconsiderable part of which is the property of consumers.

Rumors of Consolidation Denied

New York, Sept. 25. (By wire.) — Officials of the Pennsylvania, Cambria and Bethlehem Steel companies all deny that any plans of consolidation are under way. Recent changes in the Cambria organization and the report, which is also denied, that the Pennsylvania railroad will dispose of its holdings in the company, have revived the old talk of proposed consolidation.

INSTITUTE PROGRAM

Interesting Series of Papers for Meeting at Pittsburgh.

New York, Sept. 25. (By wire.)—The American Iron and Steel Institute program for the Pittsburgh meeting on Oct. 25 and 26, has been announced. The formal papers include the following topics: "The Use of Mayari Iron in Foundry Mixtures," by Quincy Bent, assistant to the president of the Maryland Steel Co.; "The Manufacture of Ordnance at the Bethlehem Steel Works," by E. G. Grace, vice president and general manager of the Bethlehem Steel Co.; "Electric Power Production and Distribution in Steel Works," by Stewart C. Coey, engineer with the Youngstown Sheet & Tube Co., the discussion to be led by B. R. Shover, of the Brier Hill Steel Co.; "Coal Mine Ventilation in the Connellsville Coke Region," by Austin King, chief mine inspector for the H. C. Frick Coke Co., the discussion to be led by Wilson A. Luce, general manager of the Ellsworth Colleries Co.; "Technical Training of Salesmen," by James Campbell, of the Carnegie Steel Co., the discussion to be led by E. P. Thomas, president of the United States Steel Products Co.; "Microscopic Analysis of Steel Sheets," by C. Arthur White, of the American Sheet & Tin Plate Co.; "Recent Developments in the Preparation of Iron Ores," by J. W. H. Hamilton, mining engineer; "The Buyer From the Manufacturer's Standpoint," by John L. Haines, assistant to the vice president of the Jones & Laughlin Steel Co.

An interesting feature is expected at the banquet in a moving picture exhibition showing the process of iron and steel manufacture, recently arranged by Rogers, Brown & Co.

Tube Company Buys Billets

New York, Sept. 25. (By wire.)—The National Tube Co. has purchased 10,000 tons additional of special billets from the eastern market for seamless tube manufacture at a shade below $25, makers' mill. Large buyers who have been in the market find semi-steel scarce at practically any price.

High Price Quoted

Cincinnati, Sept. 25. (By wire.)—One southern furnace has notified the trade that the market price on iron is now $14.50 for any delivery.

The Historic Port Henry Furnace Dismantled

Oldest Original Shell in the Country Removed and Will be Replaced by a Modern Stack—Cutting-Down the Shell

When the Cedar Point furnace, Port Henry, N. Y., was blown out June 9, 1912, preparatory to being replaced by a new stack, what is believed to be the oldest original furnace shell in operation in the United States ended its long period of usefulness. This shell is credited with a life of 37 years and during the greater part of this period the furnace either was actively producing pig iron or was idle temporarily for relining and incidental repairs.

In addition to being probably the oldest active furnace in the country, the plant also has the distinction of being historically notable. It was the first furnace to use the Whitwell hot blast stoves which were imported from England at a cost of over $100,000. These stoves were 29 feet in height and 22 feet in diameter. It was to equip this stack that Thomas F. Whitwell, the builder, invented bronze tuyeres, which he afterwards patented. He also first made use of dynamite and of blow pipes through the tuyeres for removing scaffolds. The managers of this plant were among the first to use a chemical laboratory to correct their mixtures.

The Cedar Point furnace was designed by Thos. F. Witherbee and was built during the boom period of 1872 and 1873, at a cost of about $700,000. It was blown in in the fall of 1875. At the time of its construction, it was accepted to be the most up-to-date blast furnace in the country. Its dimensions originally were as follows: Height, 69 feet, 3 inches; bosh diameter, 16 feet, and hearth diameter, 9 feet.

A Stone Lining Used

Considerable stone was used in the lining of the original furnace and this, quite remarkably, remained until 1903, when it was found necessary to remodel the stack. These improvements were accomplished in an interesting manner. The original shell was left standing and an inner shell was built, 3 feet, 8 inches inside of the former and 23 feet above the mantel. Vertical columns, 20 feet, 5½ inches long, were set upon the old mantel and the second mantel was set on top of them to hold the brickwork from this point. The inner shell was water-cooled by sprays. The lining from the top of the first mantel to the second mantel was 13½ inches thick. Above this point, 2 feet, 3 inches of new brickwork were laid and the space between the shell and the new brickwork was filled-in with old bricks. The dimensions of the furnace, when these improvements were completed, were: Height, 70 feet; hearth, 10 feet; bosh, 17 feet and stock line 11 feet, 6 inches.

The hearth jacket consisted of water-cooled plates fastened together by means of links shrunk in position with one large band at the bottom and another at the top. The bosh was constructed by similar water-cooled cast iron plates bolted together with one large band at the bottom of the bosh and at the tops of the tuyere breasts, which were also of cast iron.

The blowing equipment of the stack, which is still intact, is of interesting design. The engine is of the walking beam type, which was built by H. G Morris & Co., Philadelphia, in 1872. It is practically an inverted beam engine. The air cylinder is 100 inches in diameter, the steam cylinder, 60 inches in diameter and the stroke, 96 inches. The capacity is about 1,200-horsepower. The steam and air cylinders are vertical and a pair of beams is disposed at either side of the main frame at the bottom. The engine had a pair of

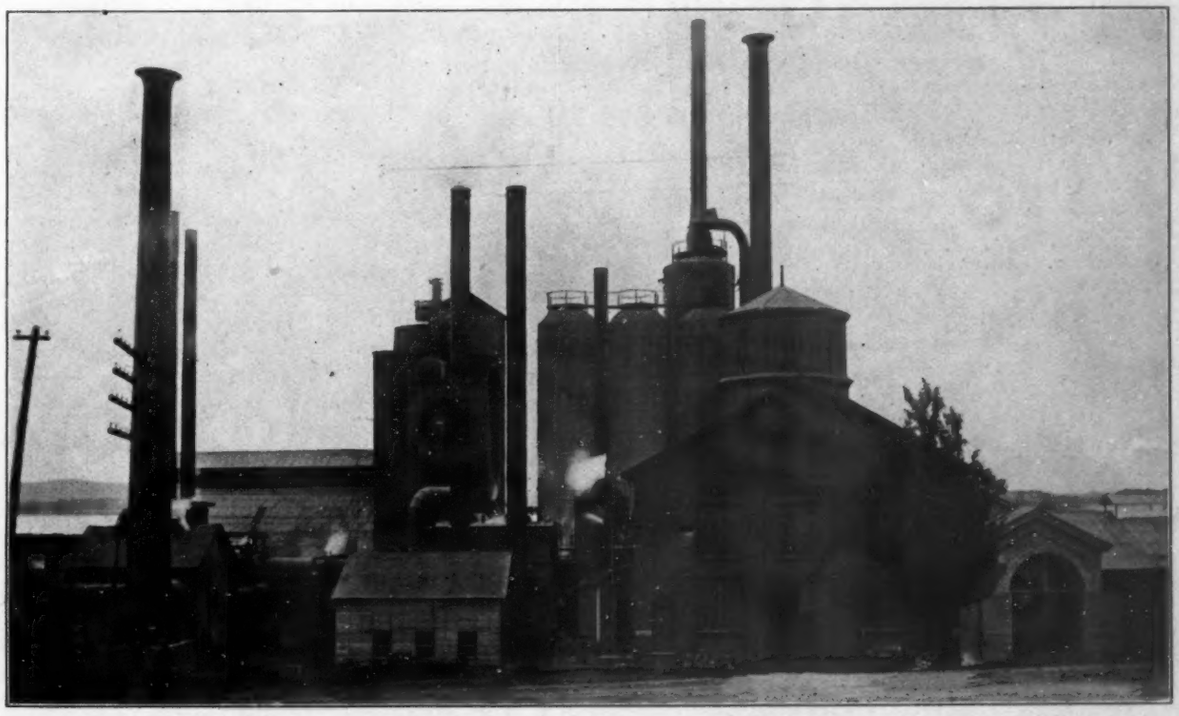


FIG. 1—OLD CROWN POINT FURNACE AT PORT HENRY BEFORE THE OLD SHELL WAS REMOVED

outside flywheels, similar to the old type beam engine. This engine is, probably, the only blowing unit of its type ever built. The original Morris engine, built for the plant, is still in serviceable condition and will constitute a part of the auxiliary blowing equipment of the new furnace when it is completed. The plant also has a second engine of the I. P. Morris type, which has a steam cylinder, 54 inches in diameter; air cylinder, 96 inches in diameter and a stroke of 84 inches.

From the start, the burden of the furnace was calculated by chemical analysis. In this connection, it is interesting to note that Mr. Witherbee was probably the first blast furnace manager in this country to use a laboratory in connection with the regular operations of a blast furnace. He inaugurated this practice when operating the Fletcherville charcoal blast furnace near Mineville, N. Y., as far back as 1867. Although at the start, the furnace was operated on anthracite coal, it was later one of the first to employ a mixture of anthracite coal and coke. When first blown, the furnace was operated on Bessemer iron for the Troy steel works, at Troy N. Y., and the output from the first blast averaged about 29 tons per day. The yield of the furnace has been increased to such an extent since that time, that in recent years the output averaged approximately 200 tons per day. In connection with the meager output of primitive furnaces, it is interesting to note that the old Bay State furnaces at the other side of the town of Port Henry, when built were only credited with an output of from 15 to 18 tons per week.

Cut Down by Flame

An interesting method was adopted for removing the old shell. The stack was actually cut down by means of an oxyacetylene or oxygen coal gas burner. Although acetylene gas has been found to cut iron more quickly, coal gas was largely used in the operation because there was a large amount of this fuel available. The apparatus used for removing the shell consisted of a small burner connected by a tube to coal gas and oxygen tanks which were of a size that could be readily carried on a man's shoulder. The flame was similar to that obtained from the ordinary laboratory blast lamp. By means of a valve, the supply of oxygen and coal gas was regulated. The complete outfit, which was furnished by the Linde Air Products Co., Buffalo, comprised one oxygen cutting regulator, one coal gas regulator, one universal cutter, 20 feet of rubber hose and 20 feet of metallic hose. Special connections were provided to fit the burner where acetylene gas was used and it was also found necessary to have extra tips for the universal cutter.

Bell Rod Burned First

The part performed by this outfit in the demolition of the shell was extensive. The bell rod was first burned by the flame, allowing the bell to drop into the furnace. Considerable burning was then done around the lip rings and hopper and after some shooting with dynamite,

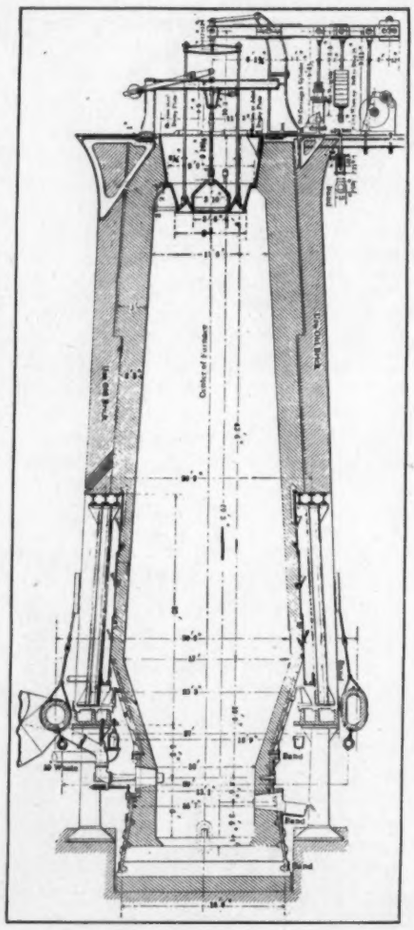


FIG. 2—CROSS-SECTION OF THE OLD STACK

all of the hopper plates were dropped into the furnace. Then, by burning off the links of the tuyere breast plate and bosh jacket, a hole in the shell was made large enough to pull out easily the plates and other construction parts by means of a hoisting engine. All this work was done from the top down by burning off one ring at a time. No scaffolds were used, as the brick work above the second mantel was all intact and was removed as the plates were cut with the oxygen burner.

When the upper mantel was reached, hook scaffolds were hung over the inside to give access for cutting-off of the rivets on the inside of the shell. This inner shell was made up of steel plates, ¾ inch in thickness. The outer shell was burned vertically into five sections and these were then pulled off by the hoisting engine and were cut by the flame on the ground, into pieces small enough for convenient handling. In taking apart the bosh the burner was especially useful, as the water-cooled plates were fastened together by 20 1½-inch diameter bolts and to have removed the nuts from these special bolts by hand would have been a tedious and prolonged task. The work was completed by burning the plates off the furnace shell and by burning through the metal of the plate.

It required only one man to operate the burner and at times—in the judgment of the blast furnace superintendent—the outfit took the place of at least 25 men; in other words, if the furnace with its peculiar type of construction, was to have been torn down by hand, it is estimated that it would have required at least six weeks' time. By the use of the oxygen acetylene burner, Geo. L. Shook, the superintendent of the plant, figures that at least four weeks were saved in the dismantling of the old plant.

Wightman & Richards

Wightman & Richards is the firm name of the technical department of Jos. A. Richards & Staff, general advertising agents, Tribune building, New York City, and represents the association of Jos. A. Richards, Lucius I. Wightman and Paul Morse Richards. Jos. A. Richards is the head of the agency bearing his name, which was founded in 1872. Mr. Wightman is an engineer, who for many years specialized in the advertising and marketing of machinery and engineering products and Paul Morse Richards has had a wide experience as a publisher, sales and advertising manager. This firm brings to the field served by the technical press the combination of agency facilities with specialized technical and engineering skill. The scope of its service includes the direction and preparation of advertising and advertising literature, mailing lists, sales campaigns, marketing plans and the organizing and systematizing of advertising departments.

Building the Equipment for the Panama Canal

How One Company, Which Received the Contracts for Most of the Canal Lock Machines and Castings, is Doing this Special Work

The Wheeling Mold & Foundry Co., Wheeling, W. Va., for many months has been engaged in the building of equipment and in the manufacture of castings for the Panama canal. The contracts awarded to this company by the Isthmian canal commission include 92 moving machines for opening and closing the mitering gates, 114 machines for operating the rising stem gate valves which regulate the main supply of water to and from the locks, and the 132 machines, including spares, for operating the cylindrical valves which regulate the flow of water in and out of the locks. In addition, the company is furnishing all of the iron and steel castings for the mitering lock gates and the conductor rail for carrying current to the electric locomotives which move vessels through the locks.

The castings for the mitering lock gates are being furnished under subcontract from the McClintic-Marshall Construction Co., Pittsburgh, which was awarded the general contract covering all of the mitering lock gates. These castings include the pintle bearing on which the gate swings, the yoke bearing supporting the gate at the top, the reaction castings which line the two edges of the gate and support the nickel steel bearing plates and the manhole frames and covers used in the manhole system. In addition to the castings there are being furnished under this sub-contract the rolled nickel steel bearing plates, yoke pins and wedges, approximating over 1,000,000 pounds; 40,000 pounds of manganese bronze bushings and pins, forged nickel steel pintles for all gates and the pumping system which will require 350,000 pounds of piping, valves, etc. The total weight of the material of this sub-contract amounts approximately to 12,000,000 pounds.

Vanadium Steel Yoke

Probably the most important of the castings is the yoke on which the gate swings at the top. This casting is made of vanadium steel and weighs 65,000 pounds, including the bronze bushing. A view of a number of these yokes lined up in the machine shop is illustrated in Fig. 8. In April, 1911, one of the yoke castings was tested to destruction at the Ambridge, Pa., plant of the American Bridge Co. The steel throughout displayed wonderful uniformity. The heel castings are made of steel containing 0.30 per cent carbon and weigh 6,000 pounds each. They are machined on five faces and each contains 316 drilled holes. This casting is built into the structural steel gate and transfers the entire weight of the gate to the pintle bearing. These bearings are made of vanadium steel and the upper casting has a manganese bronze bushing, which fits the nickel steel forged pintle. On the 12 gates reached by tide water the bushing was made of vanadium steel instead of manganese bronze on account of the danger of electrolytic action. The quoin end reaction castings per leaf average 87,000 pounds in weight.

In Figs 1, 2 and 3 the methods of machining some of the large castings are illustrated. To handle this work to advantage a large number of jigs were made to facilitate machining, and rigs for erecting and testing the different castings had to be built. The machining of reaction castings was expedited by assembling a line of these sections on a rig, as illustrated in Fig. 1, which shows them prepared for placing on the planer. Most of this work was machined by a double-head planer especially built, the bottom surface being cut while moving in one direction and the two sides being machined on the reverse cut.

Fig. 2 illustrates two reaction castings having the ends faced in a vertical boring mill and in Fig. 3, the

FIG. 1—METHOD OF ASSEMBLING CASTINGS IN THE MACHINE SHOP, PREPARATORY TO PLACING ON PLANER

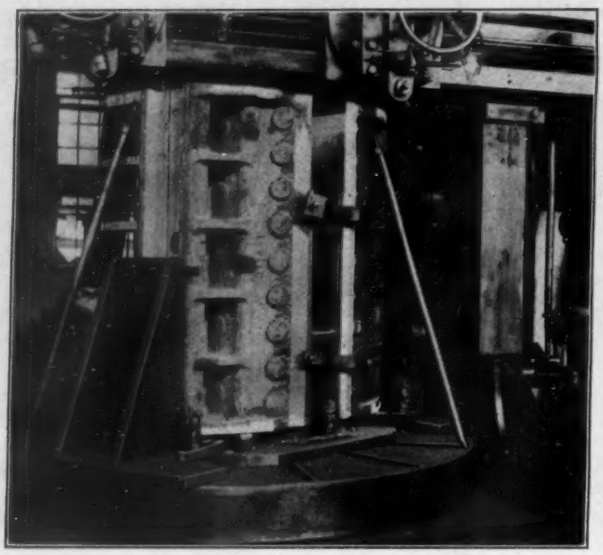


FIG 2—TWO REACTION CASTINGS ON A VERTICAL BORING MILL, HAVING ENDS FACED AT ONE OPERATION

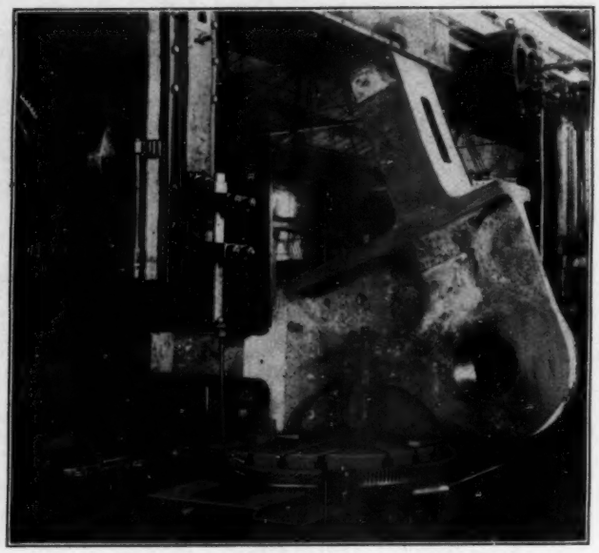


FIG. 3—MACHINING RECTANGULAR HOLES FOR WEDGES IN YOKE CASTING ON A SLOTTER

rectangular holes for wedges in yoke castings are being machined on a slotter. The 10-inch nickel steel yoke pins were tested by a specially designed machine, as illustrated in Fig. 4, the pressure being 250 tons which exerted a fiber stress of 35,000 pounds per square inch.

Operating the Mitering Gates

Probably the most interesting equipment used in connection with the lock gates includes the 92 moving machines for opening and closing the mitering gates. On account of the large size of these gates an entirely new type of machine was designed by Edward Schildhauer, electrical and mechanical engineer for the Isthmian canal commission. The Wheeling Mold & Foundry Co. was awarded the contract for all of these machines and the first two have been delivered and tested and work on the remaining 90 machines is well under way. The machine complete with strut arm weighs about 50 tons, the entire order involving approximately 4,600 tons of material. The machine is operated by an electric motor rated at 500 revolutions per minute, which is geared down at a ratio of approximately 1 to 1,650, reducing the speed to less than one-third of a revolution per minute for the large gear wheel which is directly connected to the gate by the strut arm. This large gear is 19 feet, 3 inches in diameter and in moving the gate, it operates approximately through one-half of a revolution, thus requiring less than two minutes to open and close the gate. The methods of machining this gear wheel are illustrated in Figs. 5 and 10.

Approximately 130,000 lineal feet of copper conductor rail were furnished, aggregating 400 tons. This material will be used for conveying current to the electric locomotives used for towing vessels through the locks. The sub-contract for this material was awarded to the American Brass Co., the work having been done by the Coe branch, Ansonia, Conn. The section adopted by the commission was designed by the engineers of the Wheeling Mold & Foundry Co. The conductor bar is of such form that it can be readily fastened in place.

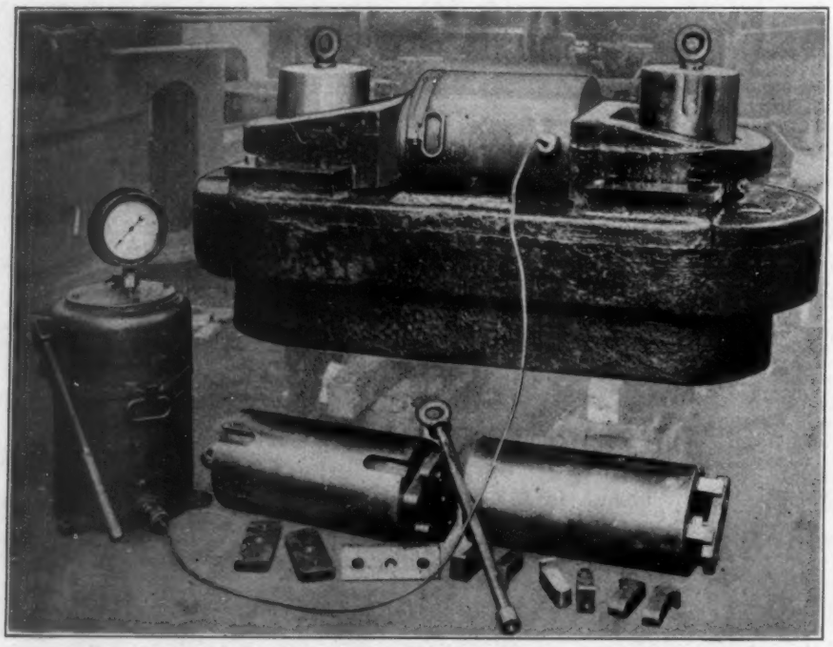


FIG. 4—RIG FOR TESTING NICKEL STEEL YOKE PINS

Rising Stem Valve Machines

The rising stem valve machines, operated in pairs, are illustrated on a testing rig in Fig. 6. Another view of this testing rig is shown in Fig. 9. The testing installation shown in Fig. 6, was used for testing the first two machines and was later torn down to provide room for necessary track changes. These machines are tested by continuous operation for one hour without load and for one hour with a load of 60,000 pounds. The 116 machines weigh approximately 7,200,000 pounds. The guide frames for these machines were built into the masonry of the lock walls and were ordered, therefore, considerably in advance of the machines. This was the first material furnished by the company. The final shipment of

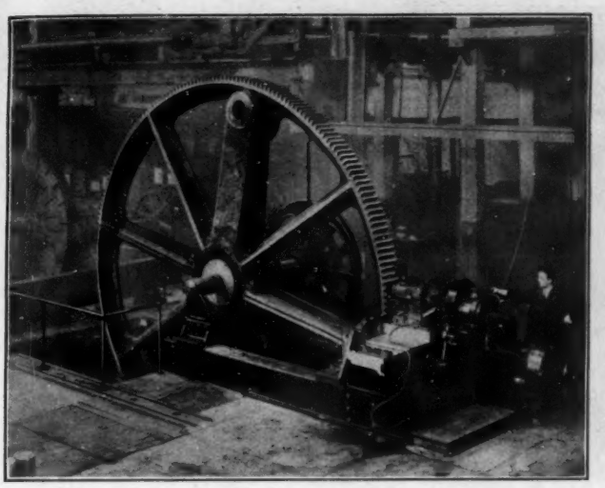


FIG. 5—CUTTING TEETH IN A LARGE GEAR FOR MITERING GATE

FIG. 6—TEST RIG USED FOR TESTING THE FIRST TWO RISING STEM VALVE MACHINES

these guide frames was made early in 1912. The material furnished on these orders amounted approximately to 9,000,000 pounds.

One of the cylindrical valve machines undergoing an operating test is illustrated in Fig. 7. The test consists of continuous operation for the hour without load, followed by 100 complete cycles with a load of 14,000. The motor illustrated is employed only for the tests and the operating motors are being furnished by another company and are shipped direct to the isthmus. The total weight of the 132 machines is approximately 550,000 pounds.

Preparatory Work

An interesting feature of the operation connected with these contracts was the large amount of preparatory work required. All material is being furnished according to a definite schedule laid out by the commission and penalties are charged for delay in the non-delivery of material within a specified time. Each machine is assigned to its specified location on the isthmus, before leaving the shop and all crates in which the machines are encased are numbered to indicate the location to which they are to be delivered. For recording the progress of the work on all the different parts from the casting or purchase of each item to its final assembling and shipment, a system of forms was devised to show the status of any machine at any time. Other forms have been provided which indicate the progress of the shipments so that data are obtainable for all stages of manufacture to the final delivery at the isthmus.

In preparing for the construction of this equipment a large drafting force was required to plan rigs and jigs to economically handle the machine work and its subsequent erection. Also, many minor changes were made in the original plans of the commission to facilitate the work.

New Erecting Shop

To facilitate the manufacture of this large amount of equipment, the Wheeling Mold & Foundry Co. built a new erecting shop which is served by two traveling cranes and an additional crane runway, 500 feet long, was built over the casting storage yard. A rearrangement of the railroad sidings also was made, which permits of loading five freight cars by traveling cranes without shifting. Other equipment installed includes gas engines, planers, gear cutters and other machines.

The Wheeling Mold & Foundry Co. specializes in rolling mill equipment and has filled some notable contracts. Aside from this line of work one of the largest orders undertaken by this company provided for furnishing the cast iron lining for the Pennsylvania tunnel under the North and East rivers, New York City. This contract involved 54,000 tons of castings. The Wheeling Mold & Foundry Co. was organized in 1897, with a small capital stock, which since has been increased to $1,000,000. The officers of the company are: C. E. Blue, president; L. V. Blue, vice president; H. S. Bradley, secretary, and H. Quarrier, treasurer. W. V. Hoge Jr., is manager, and E. C. Rauchenberg is superintendent of the Wheeling works.

FIG. 7—CYLINDRICAL VALVE MACHINE ON TESTING RIG

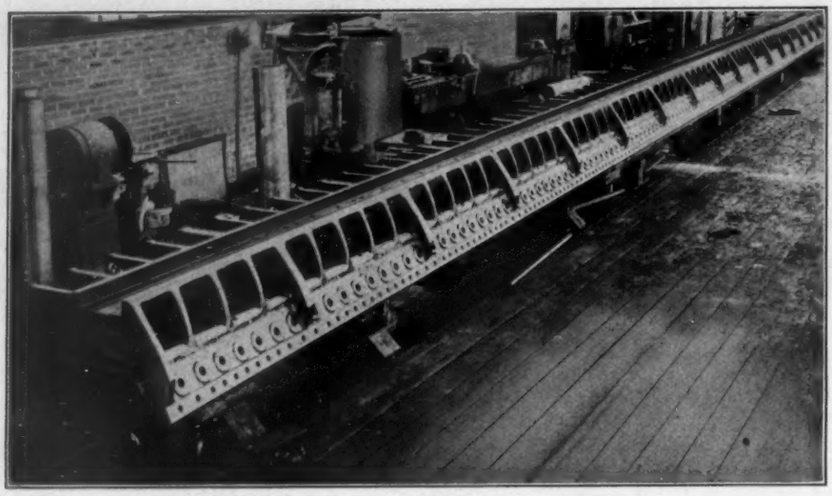


FIG. 8—YOKE UPON WHICH THE GATE SWINGS. THIS CASTING WEIGHS 65,000 POUNDS AND IS MADE OF VANADIUM STEEL

Graphite Mining in Ceylon

An interesting account of the methods of mining graphite in Ceylon, the largest producer of this useful mineral, is contained in an advance chapter on graphite, by Edson S. Bastin, of the United States geological survey, from "Mineral Resources" for 1911. The graphite is mined either from open pits or through vertical shafts connecting with underground workings. Most of the mines are not deeper than 100 feet, though a few go as deep as 400 or 500 feet. In a few mines steam pumps and hoists are employed, but as a rule the mining methods are still crude, the acme of mechanical ingenuity being reached in a windlass operated by five or six men for hoisting the graphite in a sort of tub. The workmen usually ascend and descend by means of rough wooden ladders, tied with jungle ropes and rendered exceedingly slippery by the graphite dust and water.

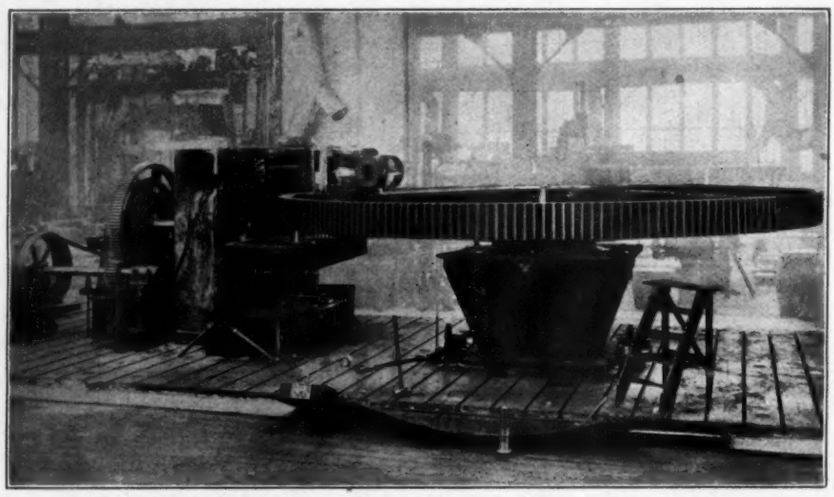


FIG. 10—FACING-OFF LARGE GEAR WHEEL FOR MITERING GATE

The mineral as it comes from the pits is conveyed in bags to a dressing shed, where it is picked over and the impurities reduced to 5 or 10 per cent. It is then packed in barrels for transportation to Colombo or Galle. At these ports it is unpacked and submitted to further treatment known as "curing." The graphite merchants have fenced yards or "compounds" for the final preparation of the graphite for the market. The large lumps and the screened pieces are broken with small hatchets by Singhalese women to remove the coarser impurities, such as quartz, and are then rubbed by hand on a piece of wet burlap and finally on a piece of screening to give them a polish. Finally, various grades coming from several mines or differing in size or texture are blended to meet the requirements of purchasers.

One of the most important uses of graphite is for lubricating. The addition of graphite to oil results in a lower frictional resistance than would be obtained by the use of oil alone. The quantity of oil required for a given service is also reduced and a lighter grade of oil may be employed without decreasing the quality of the lubrication. A small quantity of graphite only is required, and the benefits derived from its use persist long after the application has ceased. Both the amorphous and the crystalline varieties of natural graphite are extensively employed for lubrication.

The manufacture of artificial graphite is conducted by means of the electric furnace, an anthracite coal carrying small amounts of evenly distributed impurities being the material from which the ordinary grades are made. For obtaining the purest grades of graphite, petroleum coke is substituted for anthracite.

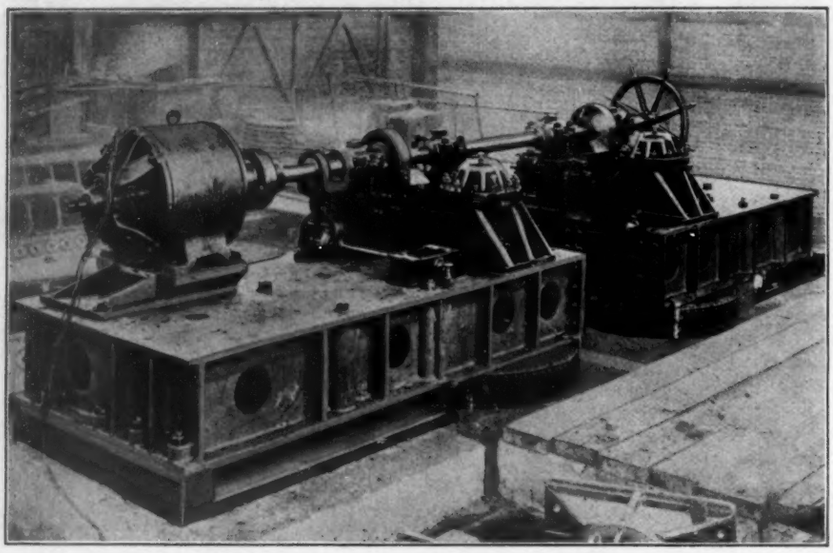


FIG. 9—ANOTHER VIEW OF TESTING RIG FOR RISING STEM VALVE MACHINE

A Large Missouri Machinery Building Plant

Description of the New Plant of the Fulton Iron Works, St. Louis, Which Includes a Large Machine Shop and Foundry

Among the new industrial plants built annually in the United States there are comparatively few designed for the production of heavy mill machinery, large steam engines or similar lines of work. The few new works which are built from time to time are, therefore, of unusual interest and generally embody the most modern ideas in design and construction.

An important plant of this character has recently been completed by the Fulton Iron Works for the construction of heavy sugar mill machinery, Corliss engines, air compressors, oil engines, etc. The plant comprises a large machine shop, foundry, pattern shop, forge shop, power plant and auxiliary departments located in Hodimont, one of the westerly suburbs of St. Louis.

The Fulton Iron Works was organized in 1852, as Girard B. Allen & Co., and a small shop was erected on the levee at St. Louis for the manufacture of steamboat machinery. Later, some large pumping engines for the city of St. Louis were made. In 1871 the concern was incorporated as the Fulton Iron Works and since 1884 has made a specialty of sugar mill machinery and Corliss engines. The company claims to have built the first modern multiple type sugar mill in 1892. Air compressors are also manufactured and recently the American rights for the patents on the Tosi oil engine have been acquired.

The New Plant

The new plant occupies a plot of ground 746 feet wide and 459 feet deep, south of Plymouth avenue and east of the main line of the Wabash railroad. The general arrangement of the various buildings is shown in Fig. 11. The machine shop, which occupies the center of the property, is 164 feet wide and 307 feet long. West of and parallel to the machine shop, is the foundry, 112 x 253 feet. Between the foundry and machine shop is a material yard, 52 feet wide, spanned by a 20-ton traveling crane. The tool room, which is built onto the west side of the machine shop, occupies a portion of this yard. The pig iron, scrap and coke storage yard is west of the foundry, between it and the pattern shop and power plant. It is 75 feet wide and is spanned by a 10-ton Pawling & Harnischfeger crane. The western edge of the property is occupied by the pattern storage building, pattern shop and power plant, respectively, as indicated in Fig. 11. These buildings are trapezoidal in form, the pattern storage being 140 feet long with an average width of 100 feet. The pattern shop, situated between the pattern storage and the power plant, is 80 feet long, with an average width of 65 feet. The power plant is 100 feet long, 58 feet wide on the north end, tapering to 16 feet on the south end. Spur tracks from the Wabash railroad enter the property, as indicated in Fig. 11, and traverse all parts of the yard. One track enters the south end of the erecting shop, which is situated in the machine shop building.

The machine shop is a steel frame structure with brick walls and monitor roof. It is divided into three bays, including a center bay, 75 feet wide, and two side bays, each 40 feet in width. The southerly third of the machine shop is used for the erecting department. The main bay is spanned by 30 and 20-ton Pawling & Harnischfeger traveling cranes, 75-foot span, each crane being equipped with a 5-ton auxiliary hoist. The side bays are each furnished with a 20-ton Pawling & Harnischfeger traveling crane.

Fig. 1 shows a general view of

FIG. 1—GENERAL VIEW OF THE MACHINE SHOP OF THE FULTON IRON WORKS, LOOKING TOWARD THE ERECTING DEPARTMENT

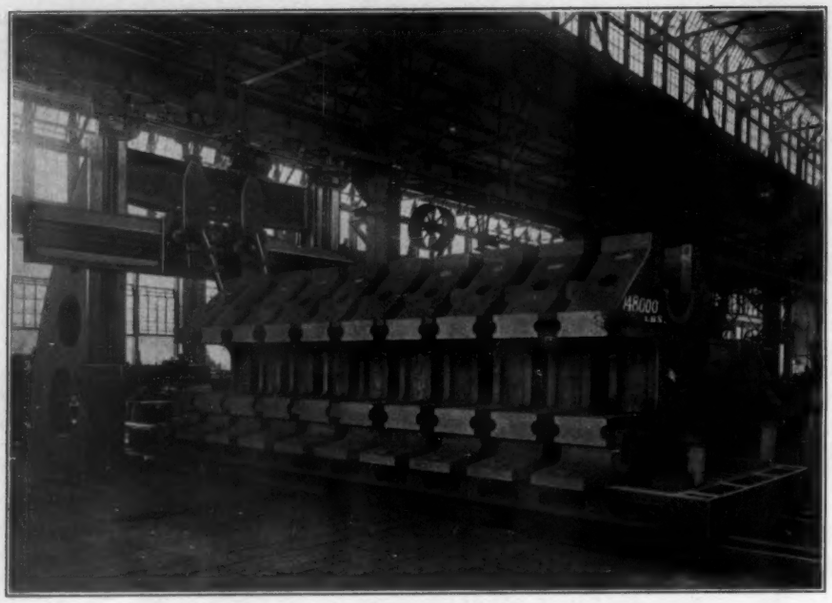


FIG. 2—A TEN-FOOT NILES PLANER WORKING ON A GANG OF ROLL HOUSINGS

the center aisle of the machine shop looking toward the erecting department and indicates the nature of the work handled. The various departments are operated more as jobbing shops than as portions of a manufacturing plant, owing to the great variation in the details of the orders received. Each sugar mill and each engine is built to meet special requirements and the usual processes in a shop producing large quantities of duplicate work are, therefore, not applicable in this case.

The machine shop includes a number of large machine tools specially designed to take care of the heavy work handled. The big machine tools, which are driven by individual motors, are grouped at the north end of the center aisle, while the light tools are placed in the two side bays.

The Planer Department

The planer department, which is shown at the left in Fig. 1, includes a 72-inch x 25-foot Miles planer driven by a Westinghouse reversing motor; a 42-inch x 12-foot and a 48-inch x 16-foot Gray planer; a 60-inch x 25-foot Niles planer with a Westinghouse reversing motor and a 120-inch x 25-foot Niles planer with a Cutler-Hammer reversing motor. The latter tool is shown in Figs. 2 and 3 working on a group of 10 roll housings for a large sugar mill. As indicated in these illustrations, the planer is provided with a heavy cross-rail and two wing heads carrying four tool rests, each of which operates independently, enabling four surfaces to be planed at one time. The wing heads are designed to plane surfaces 4½ feet inside of each housing.

FIG. 3—FRONT VIEW OF NILES PLANER SHOWING WING HEADS IN ACTION

Rolls for Sugar Mills

The rolls for the sugar mills consist of semi-steel shells mounted on forged shafts. Several of the shells and shafts may be seen at *S*, Fig. 1. The shells are bored internally and turned on the outside and are then pressed over the shafts with an 800-ton hydraulic press. For the machine work necessary in connection with these operations, a 60-inch Pond lathe and a 72-inch cylinder boring machine are employed. The latter was designed and built by the Fulton Iron Works. The shop also is equipped with a 10-foot Niles horizontal boring and milling machine, with a 60-inch x 16-foot bed rebuilt Niles roll lathe and with a 54-inch x 30-foot bed Niles shaft lathe.

The roll lathe is illustrated in Fig. 4. The bed of the machine has been strengthened by the addition of an extra rail which carries the outer portions of the tool rest. This is shown clearly in Fig. 4. The headstock has also been built since the machine came from the shops of its maker.

Cylinder Boring Machine

Fig. 5 illustrates the Fulton cylinder boring machine operating on a Corliss engine cylinder. The cylinder and valves are bored at one operation, as indicated in this illustration. The main boring bar is double-ended, one end being equipped with a left hand thread so that when boring roll shells both ends are operated on at once, thus saving considerable time. A roll, 20 inches inside diameter, similar to the one shown in the lathe in Fig. 5, is bored in from seven to nine hours. Special clamp saddles, which permit quick adjustment, are used when boring roll shells.

The tool room is 30 x 50 feet and is equipped with the usual machine tools, including lathes, planers, shaper, milling machine, etc. A large quantity of small supplies and mis-

cellaneous hardware is also kept in stock. Connecting with the machine shop on the side opposite the tool room is a lavatory and wash room, 25 x 50 feet, completely equipped and provided with steel lockers for the convenience of the men.

The Foundry

The foundry building is a steel frame structure with brick curtain walls and a straight monitor roof, as indicated in Fig. 10. About 75 per cent of the wall space is glass and the windows are arranged so that most of the light comes from above and through the monitor, thus avoiding the annoying shadows on the molding floor. The building is 252 feet, 9½ inches in length, and 112 feet in width. A row of posts on one side, as shown in Fig. 8, divides the interior into two bays, the main bay being 80 feet and the side bay 30 feet in width. The central portion of the side bay is occupied by the cupolas and core department. The molding floor area is, therefore, approximately 23,830 square feet, equivalent to about 530 square feet per ton of output daily. The carpenter shop, 22 feet square, connects with the molding floor at one end of the building. It is used for flaskmaking and other rough wood-working. The foundry superintendent's office is in a small leanto opposite the cupolas and adjacent to the toilet rooms and lavatories. A concrete drainage basin, 20 feet in diameter and 10 feet deep, has been constructed south of the building for collecting the roof water and drainage from the foundry yard.

Storage Yard and Charging Floor

Probably the most novel feature of this plant is the arrangement of the foundry yard and charging floor, as illustrated in Fig. 10. The yard is provided with a standard gage switch track, as shown in this illustration, over which the cars carrying the pig iron, scrap, etc., are brought in. A track scale, situated under the box cars, Fig. 10, is provided for checking the weights of material received. The yard is 75 feet in width and extends the full length of the foundry building. It is spanned by a Pawling & Harnischfeger traveling crane equipped with a 10-ton main and a 3-ton auxiliary hoist. The crane rails are carried by the wall of the foundry building on one side and by a truss supported by the pattern shop and power plant on the other.

The charging platform extends out under the yard crane runway as indicated at *F*, Fig. 10, and the coke is stored in an elevated bin built over the core ovens on a level with the charging floor as shown at *C*, Fig. 10. The charging buggies shown on the platform *F* are loaded in the yard below with their proper amount of pig iron and scrap and are then hoisted to the platform by the crane. The crane is also equipped with an electric magnet for handling iron and scrap. The coke bin is, of course, also loaded by the traveling crane direct from cars. The bin is heavily constructed of steel plates and is about 50 feet long, 30 feet wide and 3 feet deep. It has a capacity of approximately 10 carloads.

The details of the charging floor are shown in Fig. 9. The construction is fireproof throughout, the floor being laid with steel plates. A multiple beam platform scale, shown at the left in Fig. 9, is used for weighing the charges. The charging buggies are of the usual type, provided with flanged wheels so they may be operated on the industrial tracks which connect the various parts of the plant. An air hoist provided with a special toggle chain connection is used for dumping the

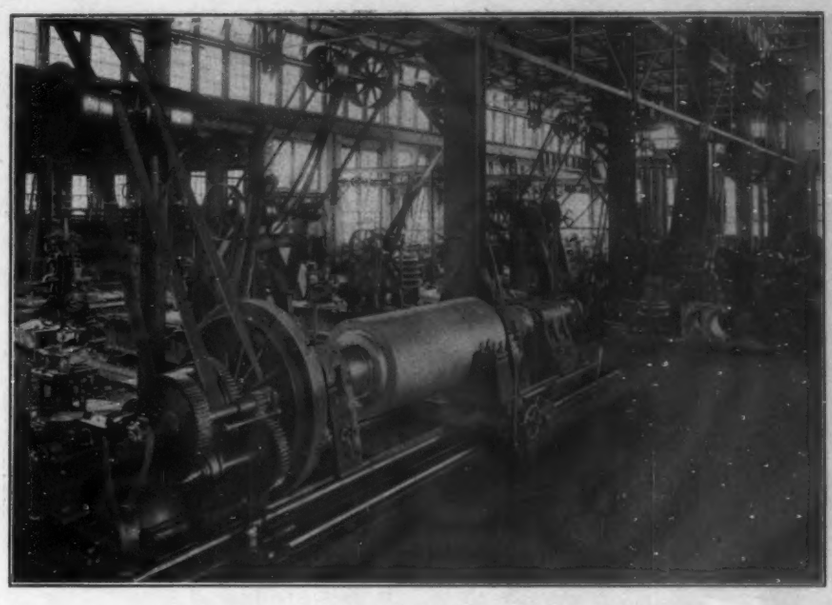


FIG. 4—A REBUILT 60-INCH ROLL LATHE

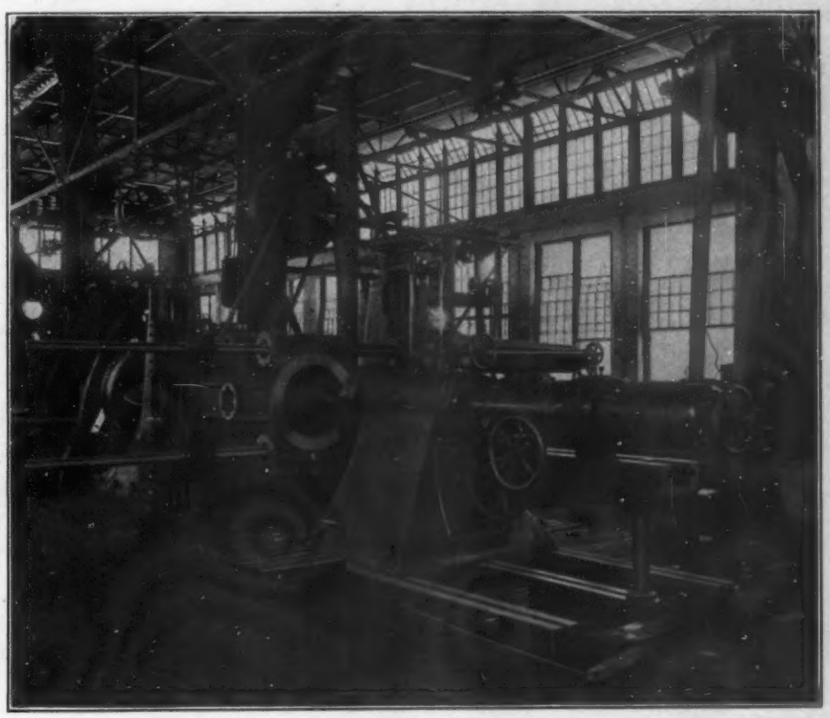


FIG. 5—DOUBLE ACTING CYLINDER BORING MACHINE

FIG. 6—A CORNER IN THE MOLDING ROOM, SHOWING CORE OVENS AND ARRANGEMENT OF CUPOLA SPOUTS

charges into the cupola. This arrangement is shown clearly at *A*, and although very simple and inexpensive, has proved satisfactory in operation.

Melting Equipment

The shop is equipped with two Whiting cupolas, 48 and 66 inches in diameter inside of lining, respectively. The cupolas are completely enclosed by a brick wall, only their spouts being exposed, as indicated in Fig. 6. The blower, together with the electric motor used for driving it, are placed on a mezzanine floor under the charging floor. This floor consists of concrete slabs laid between I-beams. The blower room is separated from the cupolas by a steel partition and the motor, which is belted to the blower, is further protected from dust by secondary partitions. The cupola chamber is provided with a 24-inch exhaust vent to the roof. This vent is shown on the charging floor level at *V*, Fig. 9. A 36-inch positive pressure rotary blower built by the Connersville Blower Co., Connersville, Ind., has been installed. It discharges through a 24-inch blast pipe connecting with the wind boxes of the cupolas. The blower is belted to an interpole motor rated at 50 horsepower and designed to run from 750 to 1,125 revolutions per minute on a 220-volt circuit. The motor was furnished by the Electro-Dynamo Co., Bayonne, N. J., and is designed for an overload of 65-horsepower at 241 amperes for two hours without excessive heating. For recovering the iron in the cupola drop, a wet cinder mill has been installed in the foundry yard underneath the charging platform.

FIG. 7—GEAR WHEEL SPIDER MOLD, SHOWING A SPECIAL FLASK USED FOR THIS PURPOSE

A general view of the molding room is shown in Fig. 8. The cupola spouts may be seen at the right and the entrance to the foreman's office and locker rooms at the left; this illustration also indicates the character of work turned out by the foundry. The main bay is equipped with a 20-ton, 75-foot span, Pawling & Harnischfeger traveling crane provided with a 5-ton auxiliary hoist and also with a 30-ton Pawling & Harnischfeger crane supplied with a 5-ton auxiliary hoist. The service rendered by the main cranes is supplemented by two 5-ton, 20-foot overhand Pawling & Harnischfeger traveling wall cranes, one of which is shown in the background in Fig. 8. The wall cranes have been found especially useful and aid greatly in improving the efficiency of the main travelers. The side bay, including the core room, is equipped with a 5-ton crane, 30-foot span. Artificial light is supplied to the molding floor by Tungsten units shown at *L*, Fig. 8. Each unit contains four 250-watt lamps suspended under a bowl-shaped reflector above the main traveling crane. A space 35 feet square is illuminated by each lighting unit.

All Molding Done by Hand

The foundry practice is standard and in general is without distinctive features. All the molding is done by hand and the heavy jobs, of which there are many, are molded in loam in pits. Heavy bolted cast iron flasks are used, the copes being generally provided with cast iron bars shaped to conform with the requirements of the pattern. A good many large flywheels are cast and these are molded in the floor, the rim and hub being swept out in the usual manner and the arms formed by dry sand cores.

The shop also has occasion to make a large number of spiders for steel gears, varying from 6 to 15 feet in diameter. Special star-shaped, bolted-up, cast iron flasks have been provided for this work, one of which is shown in Fig. 7. The drag por-

tion of the mold is made in the loam floor with a split pattern as shown in the foreground in Fig. 7, the cope half being made in the special flask. The mold is carefully nailed and skin dried, as shown in the illustration. The special star-shaped flasks shown in the illustration are said to effect a considerable saving in sand and consequently a reduction in the molding time.

Core Department

The core department occupies a space 60 feet long and 30 feet wide in the side bay adjacent to the cupolas. The core ovens, of which there are two, are shown in Fig. 6. They extend out into the yard under the coke bin as indicated in Fig. 10 and are fired from the yard in the rear. The larger of the two ovens is 30 feet long, 20 feet wide and 20 feet high inside. It is equipped with two wide gage tracks provided with cars for carrying heavy flasks, as shown in Fig. 6. The small oven is 25 feet long, 12 feet wide and 12 feet high, and is equipped with one track and car. Each oven is provided with a rolling balanced steel door.

The north end of the main bay, shown in the immediate foreground in Fig. 8, is set aside for the cleaning department. It is provided with the usual equipment of air hammers, tumblers, etc. The foundry sand and other raw stores are kept in bins located alongside the spur track in the foundry yard.

Pattern Shop

The pattern shop is a separate building west of the foundry. It is a trapezoidal-shaped structure, the parallel sides being 82 and 60 feet in length, respectively, and the non-parallel sides, 83 and 80 feet. This is practically equivalent to a building 80 feet long and 65 feet wide. The various tools are placed in a row in the center of the shop and are driven by a line-shaft underneath the floor. There are no shafting and belts overhead. This arrangement is very neat and especially commendable for its safety. The pattern shop equipment includes a buzz planer, surfacer, band saw, circular saw, lathe, grindstone, etc. For handling heavy patterns, the shop is provided with a mono-rail hoist which, through the agency of the narrow gage industrial railway, connects with the main cranes in the yard and foundry. A three-story fireproof building has also been erected for pattern storage. Platforms from each floor of this building extend out under the yard crane runway, thus facilitating the transfer of heavy patterns.

FIG. 8—GENERAL VIEW OF THE MAIN BAY OF THE FULTON IRON WORKS FOUNDRY

The blacksmith shop, as indicated in Fig. 11, is situated north of the machine shop in a building 50 feet square. It is served by the yard crane running between the foundry and machine shop and also by the industrial railway. The equipment includes five forges, a motor-driven blower, a Niles-Bement-Pond steam hammer and a small jib crane.

The power plant, which is situated west of the foundry, is located in a triangular building, 100 feet long and 58 feet wide on the north end. The equipment includes a tandem compound Fulton Corliss engine, direct-connected to a 400-kilowatt, 1,600-ampere, 240-252-volt General Electric generator designed to run 1,120 revolutions per minute. This unit provides all power used throughout the plant and also furnishes sufficient electricity for lighting purposes. The current is distributed through a 5-panel switchboard located in the engine room. Steam is furnished by two 250-horsepower, O'Brien horizontal water tube boilers. The gases from the boilers are discharged by natural draft into a 130-foot concrete stack erected by the Metal Concrete Chimney Co.,

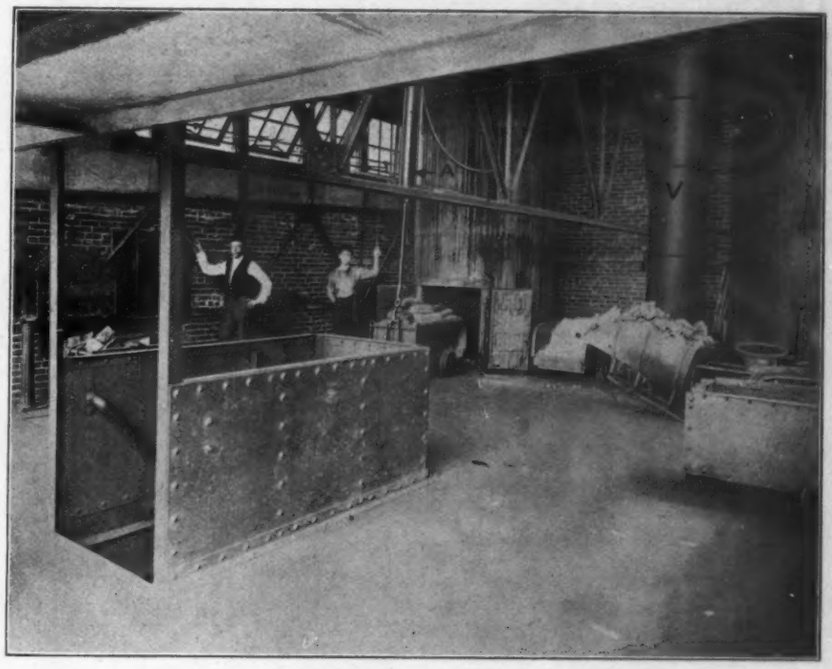


FIG. 9—A VIEW OF ONE SECTION OF THE CHARGING FLOOR

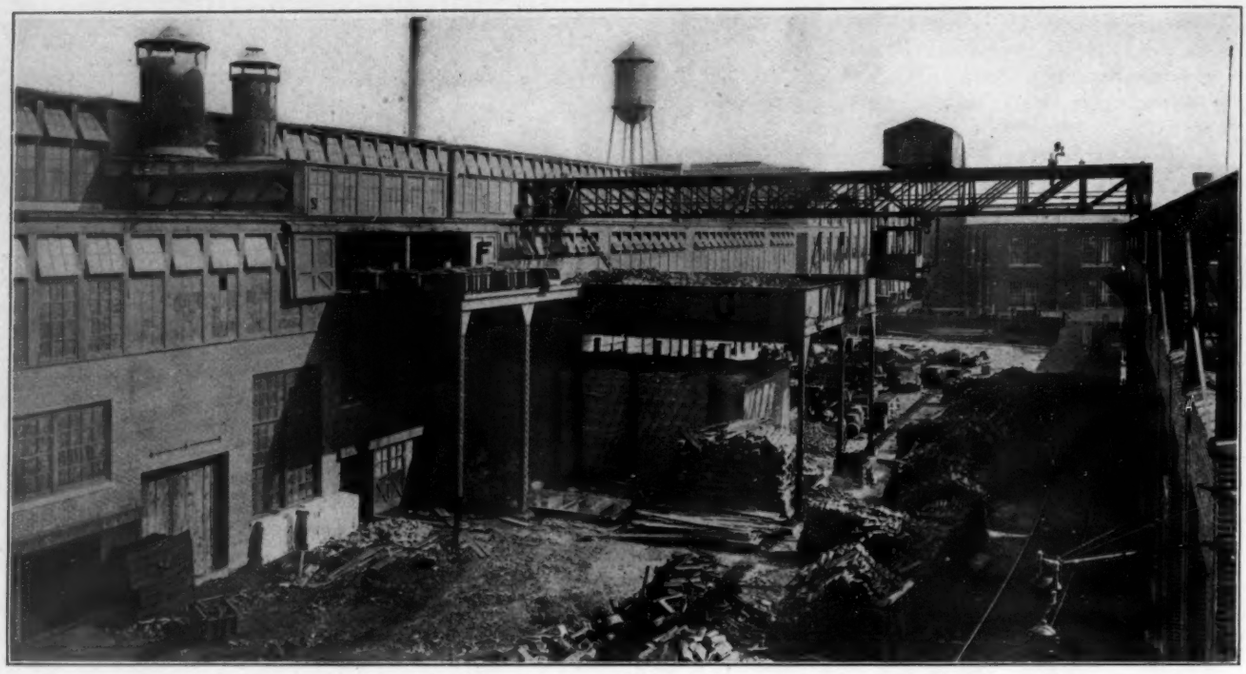


FIG. 10—THE FOUNDRY YARD, SHOWING THE ARRANGEMENT OF THE CHARGING FLOOR AND ELEVATED COKE BIN

St. Louis. The stack is 5 feet inside diameter.

The Riter-Conley Co., Pittsburgh, fabricated and erected the steel work in the new plant which was designed by the officials of the Fulton Iron Works, with the co-operation of Lichter & Jens, architects, St. Louis. The officers of the Fulton Iron Works include J. F. O'Neil, president; F. D. Canfield, vice president; L. Edward Lortz, vice president and secretary, and Roland W. Switzer, treasurer.

Tests of Structures

James E. Howard, engineer-physicist of the bureau of standards, Washington, in a paper presented at the International Congress for Testing Materials, stated that the bureau has been engaged on a method of testing engineering structures by means of strain measurements which show the deformations in different parts thereof, having reference to those strains which are the results of dead load stresses. With a known modulus of elasticity such measurements are equivalent to weighing the stresses in the different parts of the structure. For this purpose a strain gage has been devised and is being used. It is a telescopic instrument, consisting of an outer sleeve and an inner stem, each of these parts being provided with a conical contact point for engaging with small drilled and reamed holes on the structural members. There is also provided a reference bar on which is established a gaged length corresponding to those on the structural member, the extremities of which are defined by drilled and reamed holes of the same kind. The strain gage is used as a transfer instrument for comparing the measured length of the reference bar with those on the structural member. While this instrument is of a direct and simple character, its use requires unusual care and skill. Experience has shown that strains may be reliably measured and corresponding stresses ascertained accurately within 300 pounds per square inch for dead loads of either tension or compression. Laboratory tests are essentially elementary in their character, according to Mr. Howard, in the sense of being limited to the application of test loads commonly in one direction only, a condition which does not prevail with structural members as generally found under service conditions.

According to present information, it is stated that the margin in strength between the working loads and those which are a menace to the integrity of the structure, is represented by the

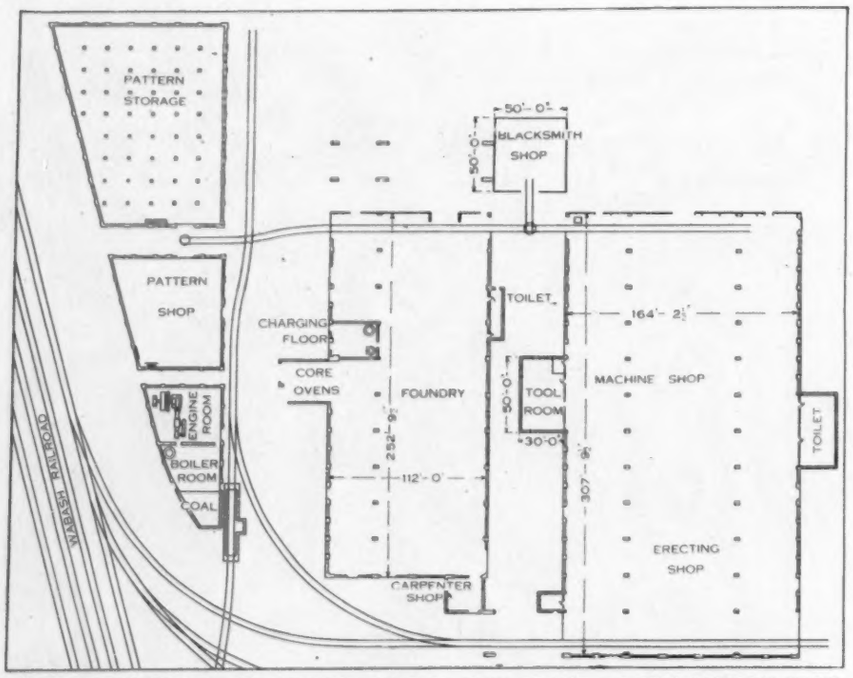


FIG. 11—GENERAL ARRANGEMENT OF THE NEW PLANT OF THE FULTON IRON WORKS, ST. LOUIS

difference between the unit working stress and the elastic limit of the materials which compose the structure. The list of structures upon which tests have been made or are about to be inaugurated include: The Williamsburg bridge, Bankers Trust and the Woolworth buildings, all in New York City, and the Quebec bridge, Quebec; also monolithic brick pavements in Cleveland and Indianapolis.

New Universal Lathe

The Cincinnati Precision Lathe Co., Cincinnati, is now manufacturing a new universal or swivel head lathe on which the use of cone pulleys is eliminated. The location of the belt pulley permits the application of power from below the bench, side wall or overhead. The lathe head is of the universal or swivel type, with a reading at the back of the head. The head may be located at any angle desired by means of an eccentric bolt at the back and a hardened bolt at the front. The accuracy of the swivel head is maintained by a hardened and ground circular ring inserted in the upper base and accurately fitting in a circular slot in the plate, which is scraped to fit, and is bolted to the lathe bed. By means of this swivel head and a combination external and internal tool post grinder employed with a double swivel slide rest, a combination universal precision grinder and lathe is effected.

All speeds forward and reverse are obtained by a friction mechanism. The power is transmitted from the driven friction disc by a vertical spindle which drives the lathe spindle through a pair of miter gears so accurately cut and fitted that no gear nor chatter marks can be seen in the finishing cuts. There is a ball thrust collar bearing between the horizontal friction disc and the lathe bed.

Fig. 1 shows the position for face grinding by placing the lathe head at a 30-degree angle, and each swivel on the rest at 30 degrees, making the required 90 degrees. The grinder may be driven from underneath the bench if desired.

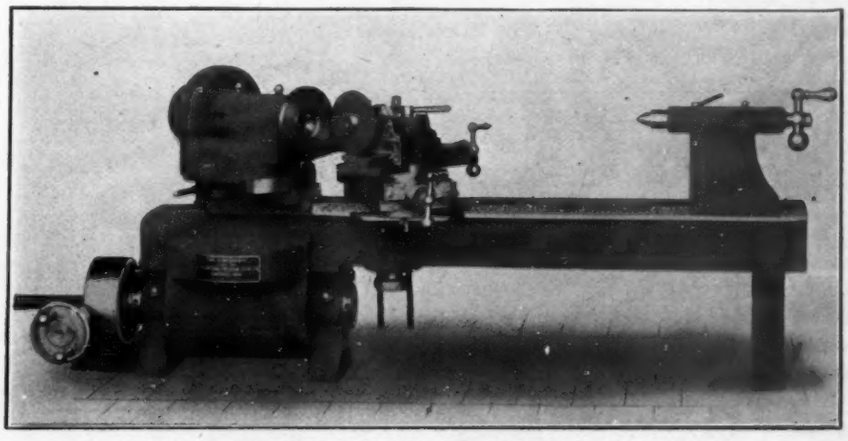


FIG. 1—UNIVERSAL LATHE IN GRINDING POSITION

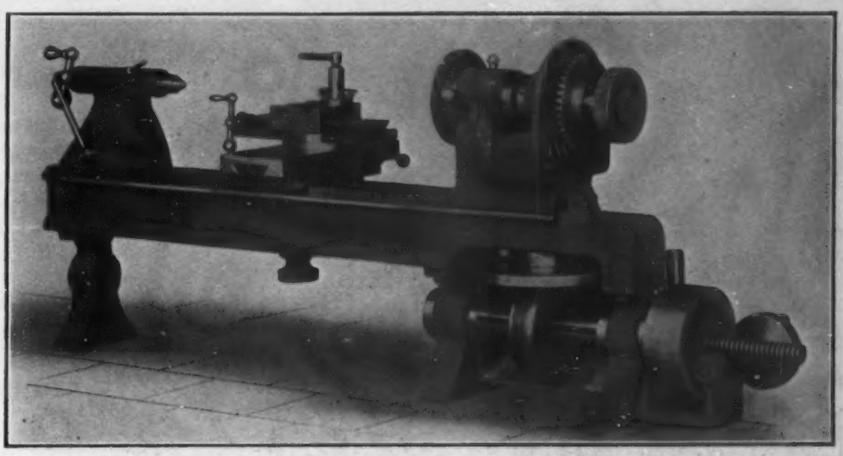


FIG. 2—REAR VIEW OF STANDARD HEAD, SHOWING THE LEVER WHICH OPERATES THE CLUTCH

The lathe has an 8-inch swing, the bed is 32 inches long, and is 15 inches between centers. The continuous speed driving pulley at 1,000 revolutions per minute provides a range of speeds from 850 to 2,500. Slow speed and high power are obtained at the outer edge of the disc, and if desired, a ⅞ inch piece of round machinery or cold rolled steel can be reduced at one cut.

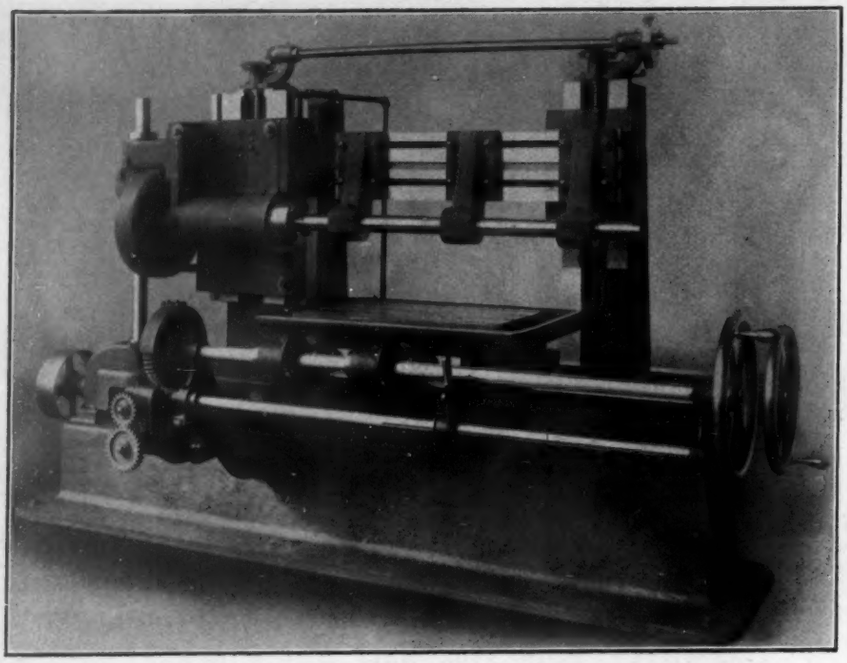
Fig. 2 is a rear view of a standard type head, showing the lever or handle which operates a clutch and enables the operator to stop or start the spindle on any speed. The clutch is applied to both the standard and swivel heads. By locating the friction driving wheel at a desirable point on the horizontal disc and with the aid of the speed indicator on the outer edge of the hand-control wheel, the main spindle is engaged at once at the desired speed by applying downward pressure on the clutch lever. By the application of this device no countershaft is required for operating the lathe. For the operation of grinders a combination countershaft for operating both the lathe and the grinder is employed.

The weight of the lever handle is balanced by a small spring which causes the fork to float in the lifting slot in the hardened, tapered member. When released this tapered section forces outward four hardened pins against a split ring which engages the miter gear. The split ring is slightly undersized in its released position, thereby preventing friction when it is disengaged. Provision also is made for starting or stopping independently of the driving belt, by slightly depressing the center of the horizontal friction disc.

Motor Trucks Extend Zone of Delivery

The possibility of extending the zone of delivery by the use of motor trucks is an important feature of their application. George A. Kissel, president of the Kissel Motor Car Co., Hartford, Wis., stated recently that "it is the force of example that is causing the remarkable increase in the use of motor trucks. Some do not seem to fully understand the great advantage of increasing the zone of delivery of about five times or more the distance covered by horses. If they are using two delivery wagons or more, and are keeping them busy, a motor truck, under most conditions, would be a profitable substitute from the very start and still have time to do the work of another horse-drawn wagon when called upon to do so."

Carl A. Buse, Cincinnati, has been appointed expert accountant and auditor of the Tool Steel Gear & Pinion Co., Carthage, O.



MACHINE FOR MILLING CRANK-SHAFT BEARINGS

A Special Milling Machine

A machine for milling the ends of crank-shaft bearings on crank cases, shown in the accompanying illustration, has been designed by the Beaman & Smith Co., Providence, R. I., and consists of a work table supported by a bed, to which are attached two uprights which carry the spindle saddle and cross-rail. The table, the work surface of which is 18 x 32 inches in area, is surrounded by a trough, has four T slots finished from the solid, and can be moved by hand 32 inches in line with the spindle and crosswise, 11½ inches. By means of gearing, the cross-movement feeds are positive and range from 1½ to 6½ inches per minute. The cross-rail, which is attached to the spindle saddle, is raised or lowered by hand, and to facilitate setting cutters to the desired depth, a dial is provided, graduated to thousandths.

The crucible steel spindle runs in hard bronze boxes, with provision made for compensation for wear. The end of the spindle has a male center and a key for driving the arbor. The front bearing is 6 inches long and 4⅞ inches in diameter; the rear bearing is 5½ inches long and 4¼ inches in diameter. One cutter arbor, with collars, is furnished, having a cutter section 42½ inches long and 1⅞ inches diameter. The three arbor supports have phosphor bronze bearings, 5⅜ inches long and 2½ inches diameter. A 4-inch belt on a 12-inch pulley transmits power through gearing in the ratio of 2.7:1, giving a spindle speed of 150 revolutions per minute. One pump, together with necessary piping, tank, etc., accompanies the machine. The countershaft has one tight and one loose pulley, 12 inches in diameter for a 5-inch belt, to run 300 revolutions per minute. The total weight of this milling machine is approximately 10,300 pounds.

Carnotite Deposits Sold

According to reports from Colorado, some of the largest deposits of carnotite ore known in this country and situated in the vicinity of Meeker, Rio Blanco county, Colo., have been purchased recently for Madame Curie, of France, the discoverer of radium. It is stated that the properties were acquired as the result of investigations by Henry Chagnoux, an expert in radio-active minerals, and solely in the hope that radium will be found in sufficient quantities to permit of greater researches by the French scientists.

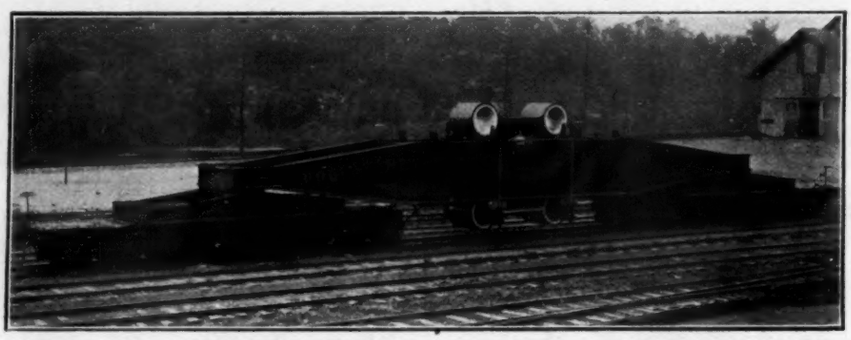
Transporting World's Largest Press

Owing to its enormous size and weight, the shipment of the largest hydraulic press in the world now being built by the Bethlehem Steel Co., South Bethlehem, Pa., has presented a difficult problem. This press is being constructed for the Carnegie Steel Co., and will be installed in its Schoen plant at McKees Rocks, Pa., for the manufacture of steel car wheels. The accompanying illustration shows the crosshead of the press loaded for transportation from South Bethlehem to McKees Rocks. The crosshead is of cast steel, weighing about 250,000 pounds and its overall dimensions are 16 feet, 8 inches x 11 feet, 3⅛ inches x 6 feet, 7½ inches. The slides for the columns in this casting are made of heavy manganese bronze and weigh several tons.

In order to transport the casting, it was found necessary to suspend it in the car in such a way as to allow a clearance of 6 inches above the rails and 6 inches between its top and the railroad clearances of tunnels and bridges. The car used is owned by the Bethlehem Steel Co., and is the only piece of rolling stock in existence that can be utilized for moving such bulky loads. Since this car will have to be used exclusively for transporting the various sections of the press and will be obliged to make frequent trips between South Bethlehem and McKees Rocks, it will require about three months to ship the press complete. The capacity of this car is 300,000 pounds and it was especially designed and built for the purpose of transporting excessively large and heavy pieces.

The press will contain the world's largest hydraulic cylinder with the largest copper liner ever made for this purpose. Its total weight is 2,135,000 pounds.

Joseph B. Andrews, of the Andrews Steel Co., Newport, Ky., has returned from a month's vacation in Michigan.



SPECIAL STEEL CAR USED FOR TRANSPORTING THE CROSSHEAD FOR THE LARGEST PRESS IN THE WORLD

A New Steel Barrel

Enormous advances have been made in recent years in adapting various forms of steel to special uses. Far-sighted leaders in the trade have given a large part of their attention to developments in this direction, as they tend to the improvement of the industry by both increasing the consumption of steel and benefiting the consumers. One of the most interesting examples of this character that has appeared recently is a new all-steel barrel, manufactured by the Inland Steel Co., Chicago. The cost of wooden barrels has increased materially in recent years both on account of higher prices for lumber and increased cost of labor.

The steel barrel is manufactured by a patented process, by means of which the more difficult parts are made from a plain sheet in a single operation. The machine consists of two conical rolls operating against a barrel-shaped drum. The various rolls are geared to act in unison and their surfaces are formed to produce longitudinal corrugations in the finished barrel. The body of the barrel is corrugated and curved by a single operation and on account of the larger circumference at the center, the corrugations are shallower at that point than at the ends. This feature required considerable nicety in the design and construction of the forming machine. The shape is the same as that of the wooden barrel, this having been found to give maximum strength. Cold rolled sheets are used, as annealed sheets have been found to be too soft to retain the finished shape. The sheets are made from basic open-hearth steel and the barrels are heavily galvanized or painted.

FIG. 1 — STEEL BARREL MANUFACTURED BY THE INLAND STEEL CO., CHICAGO

The ends of the body lap two or more corrugations, making a tight joint and are held together by a rod running the length of the barrel and through loops in both ends, effecting a strong fastening. This rod consists of a piece of straightened wire of suitable size with one end bent at a right angle.

FIG. 2—HEAD OF STEEL BARREL

The heads of the barrel are stamped, special dies being used for the purpose. In order to give the required strength at the ends, the heads are made from sheets considerably heavier than those used for the body of the barrel.

Many advantages are claimed over a wooden barrel, among which may be noted cost, strength, weight, ease in shipping and in assembling. The cost, it is said, will not exceed that of a fair grade wooden barrel of equal capacity. The steel barrel is about 60 per cent lighter than a wooden barrel of equal size. It has been subjected to severe strength tests by the manufacturer, being filled with all grades of material and thrown from a considerable height onto a hard surface. This exceeds in severity the handling to which a barrel is ordinarily subjected. By retaining the shape of the wooden barrel it can be up-ended and handled with equal facility.

One of the most noteworthy advantages claimed for the steel barrel is in shipping and assembling. For the former purpose the heads are removed and both bodies and heads are nested together. Packed in this manner they take the lowest freight rate applying to sheet steel and cars can be loaded to their full capacity. Assembling can be done by inexperienced labor, less time being required than to head up a wooden barrel.

The steel barrel is said not to be troubled with broken hoops, loose heads and nails. It is claimed that the steel barrel may be used a number of times and that for transportation of material between factory branches it may be used indefinitely.

The barrel is made in a single standard size, measuring 26 inches between the heads on the inside. Its capacity is 7,056 cubic inches and its weight is 11 pounds. The outside dimensions are as follows: Length over all, 27 inches; circumference at center, 62 inches; diameter at center, 19⅓ inches and diameter at head 17¼ inches. It is made either with self-sealing or removable heads. The head of the standard barrel is fastened to the body by means of pockets on the inside edge, which engage with notches in the body holding the head firmly in place. The removable head is attached by means of small pieces of hoop steel which are inserted through corresponding slots in the body and head and are folded over the outer edge, making a tight fastening. The removable head may be sealed by applying an ordinary car seal and it is claimed that the standard head may be used several times. Prying it off will, to a certain extent, mutilate the head, but it is stated that it can be easily hammered back into shape.

FIG. 3—BODY OF BARREL, SHOWING RODS FOR FASTENING THE TWO EDGES

Woodbury Slime Classifying Jig for Iron Ore

Description of a Device Which Classifies the Material Into Five Different Products — Economies Effected

The Woodbury slime classifying jig, built by the Power & Mining Machinery Co., Cudahy, Wis., is designed for jigging various kinds of ores, including iron, native and sulphide copper, lead, zinc, tin, etc. It is a refinement of former types of plunger jigs, so arranged that the feed flowing onto the jigs parallels the current of water, caused by the plunger impulse, enabling the jig to rapidly stratify the sands and gravel in an absolute mixed feed. An unsized ore is delivered at the head of the unit to the first compartment—the slime classifying jig. This compartment is a jig of the plunger type, 24 inches wide. The feed flowing over the sieve quickly separates into its two fundamental classes, suspended matter or slime, and sand and gravel, which settles and is stratified. The latter is thoroughly scrubbed free of slime, which is held in suspension by the hutch water, introduced under the plunger.

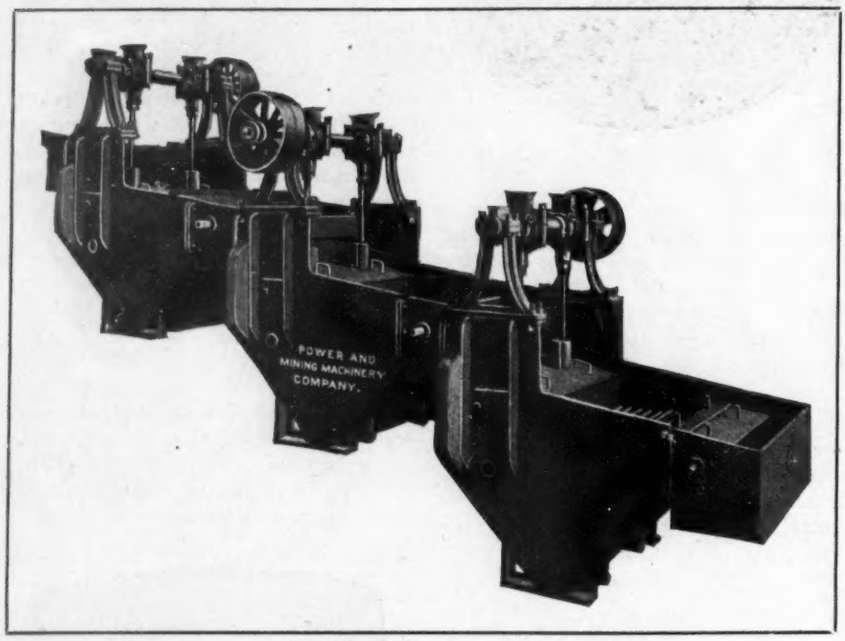


FIG. 1—WOODBURY JIGS

A device for skimming off the slime in suspension delivers a dense, original slime from this compartment as a product for further treatment on suitable tables. This separation is positive and complete, the gravel and sand on the sieve acting as a sand filter and being itself discharged thoroughly freed of all slime. At the same time this classifying jig performs all the regular functions of a jig, and separates a large tonnage of clean cup and hutch mineral, usually from 50 to 60 per cent of all free minerals being separated on this slime classifying jig.

Clean-up Jig

The second compartment is a clean-up jig for completing the separation of free mineral. This jig is 48 inches wide and usually discharges two finished products, cup and hutch concentrates. The tailings from jig No. 2 pass to jigs Nos. 3 and 4, which are termed middling jigs, and are provided with suitable middling discharges.

These middling jigs are equipped with a device for discharging middlings from an unsized feed. An angle iron shield is fastened across the tail of the jig, extending down into the middlings stratum which seals it against the entrance of tailings. From under this shield a number of openings placed at intervals of 6 inches lead into a hydraulic chamber. A fresh water supply therein, under valve control, regulates the quantity and quality of middlings discharged from under the shield through these openings into the hydraulic compartment and out through plugs in the bottom. The advantages of this device are (1) a uniform discharge over the entire width of the jig; (2) the separating and discharging of a true middling as stratified on the jig, the hydraulic water controlling the same and holding back any light tailing material.

An important feature of these jigs is the water lessener, a device for diverting the excess water in the feed into the hutch of the next succeeding jig. The tailings from one jig pass over angle iron shield and hydraulic compartment to the water lessener box of the next succeeding jig, from which they are discharged through plugs over the plunger compartment and become the feed for the next compartment. The surplus water which cannot discharge through the plugs flows over the top of the lessener into a trough communicating with the hutch under the plunger, thus effecting a very material saving in hutch water as well as reducing the quantity of top water which otherwise accumulates and tends to carry off the light values.

Hutch Work

The materials discharged from the hutches of jig compartments Nos. 1 and 2 are usually clean mineral, and are included in the general concentrates. From the hutches of the middling jigs is obtained an enriched sand containing any light fine mineral which may have been carried over from the second compartment, this sand usually being redressed on a table of the Wilfley type. From the end of the last compartment is discharged a tailing to waste, which has been freed of slime, free mineral, middlings and table sands.

To summarize, therefore, this is a means of handling a mixed feed without preliminary sizing, in large unit tonnages, which will classify the material into the following desired products:

1.—Slime (approximately 60 mesh and finer), for subsequent treatment on tables.
2.—Concentrates.
3.—Middlings for regrinding.
4.—Hutch sands for further table treatment.
5.—Tailings to waste.

In ores other than native copper, the mineral is usually softer and more friable than the gangue, and in the process of crushing is more easily slimed. It is, therefore, advisable to begin concentration as early in the process as possible, in order to recover the values as soon as liberated and before they are slimed by further crushing. The proper limiting size at which concentration should begin varies materially on different ores, in some the mineral being liberated during coarse crushing, while in others the values are so finely disseminated as to require pulverizing.

Inasmuch as the Woodbury machines will treat unsized ores, preliminary sizing is unnecessary, except where material coarser than ⅜ inch is to be concentrated, when a screen separation is necessary at ⅜ inch, the oversize being treated on coarse jigs and the undersize on the classifier jigs. The material coarser than ⅜ inch is treated without further sizing on special jigs, having adjustments and discharges suited to coarse material. When the maximum size of the ore is not over ¾ inch, the 48-inch Woodbury oversize jig is used; on a larger maximum size, the 60-inch Woodbury bull jig is used. The undersize of ¾ inch screens is treated without further sizing on the Woodbury classifier and jigs.

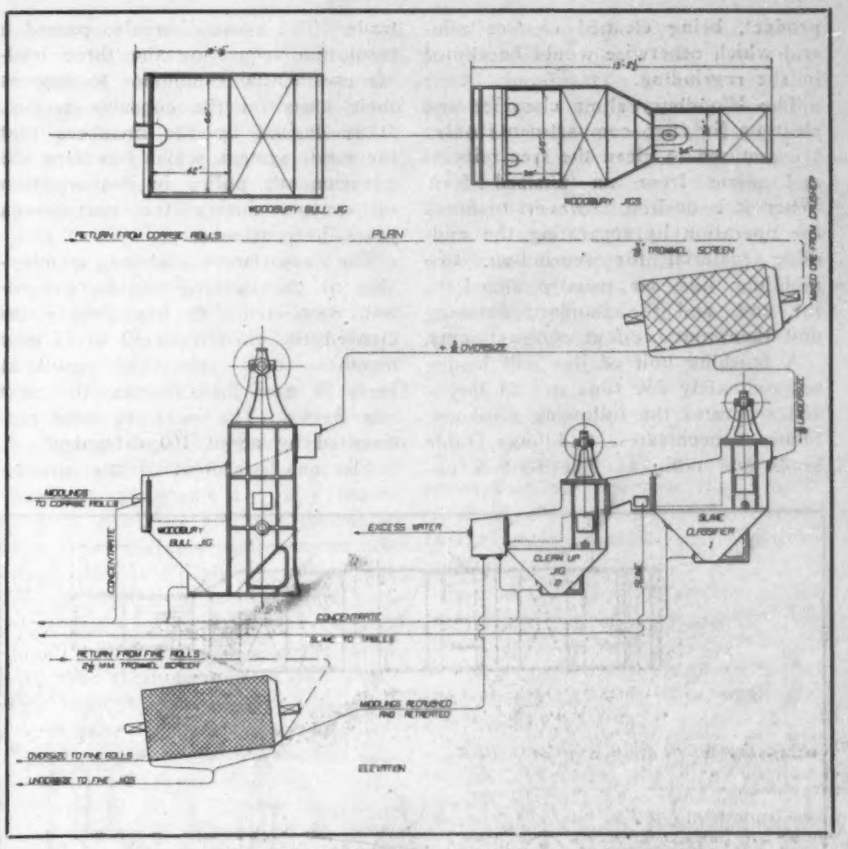


FIG. 3—WOODBURY SYSTEM APPLIED TO COARSE ORES

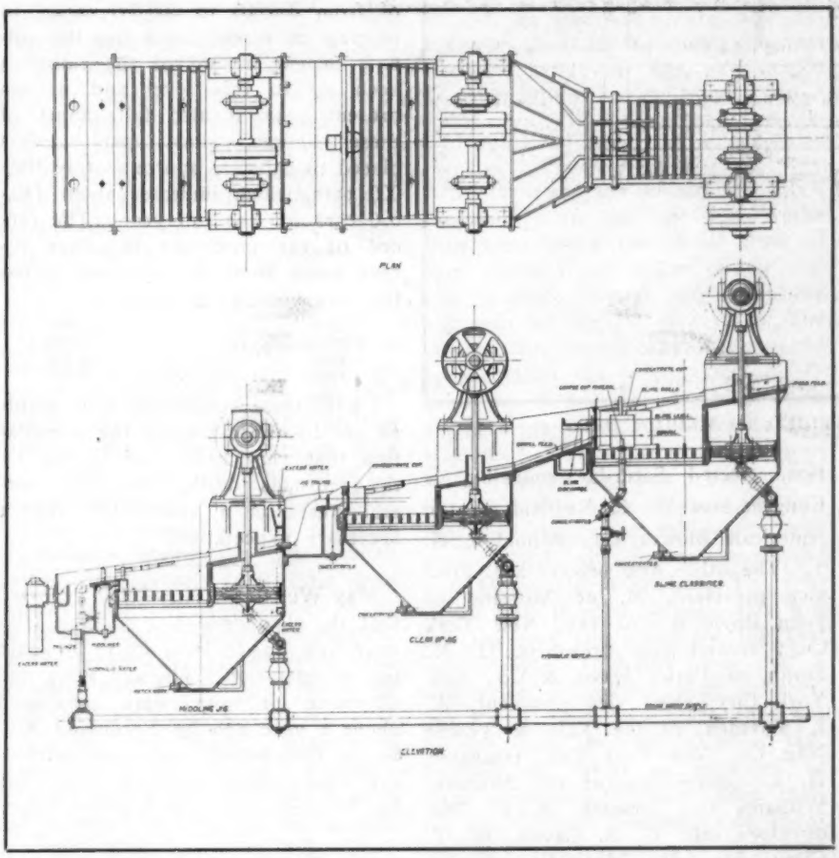


FIG. 2—THREE-COMPARTMENT UNIT, SHOWING COMBINATION OF WOODBURY SLIME CLASSIFIER AND JIGS

Where it is desired to rough-out the free mineral before grinding, the ore from the crushers is screened at ⅜ inch, the coarse mineral in the oversize material being separated on an oversize or bull jig, and the free mineral and slimes in the undersize material are separated on the two-compartment classifier jigs. The rich original slime is removed from the system without undue dilution and is passed on to the slime department. The tailings from the roughing jigs are recrushed, the coarse jig tailings being crushed to ⅜ inch, while the classifier jig tailings are finely pulverized and retreated. In case the mineral is not freed by coarse crushing in sufficient quantity for jigging, the coarse jigs are omitted and the classifier jigs only are used as roughing machines.

Ores such as brown and red hematite, coal, pyrites, etc., can be roughed in immense tonnages and with great economy in floor space, water, attendance, etc. The unfinished products, slime and middlings, are in far better condition than under the sizing system, the slime being dense, not coarser than 60 mesh, and separated high up in the mill. The middlings are thoroughly classified included

product, being cleaned of free mineral which otherwise would be slimed in the regrinding.

The Woodbury slime classifier and clean-up jig (two compartments only) are required to clean the free mineral and slime from an unsized feed. When it is desired, however, to finish the operation by separating the middling material for regrinding, two middling jigs are usually added to the unit, and the standard finishing unit then contains four compartments.

A finishing unit of jigs will handle approximately 250 tons per 24 hours, and separates the following products: Slime, concentrates, middlings, table sands and tailings. The feed is unsized and may be the undersize of any size screen, provided it does not exceed ⅜ inch round.

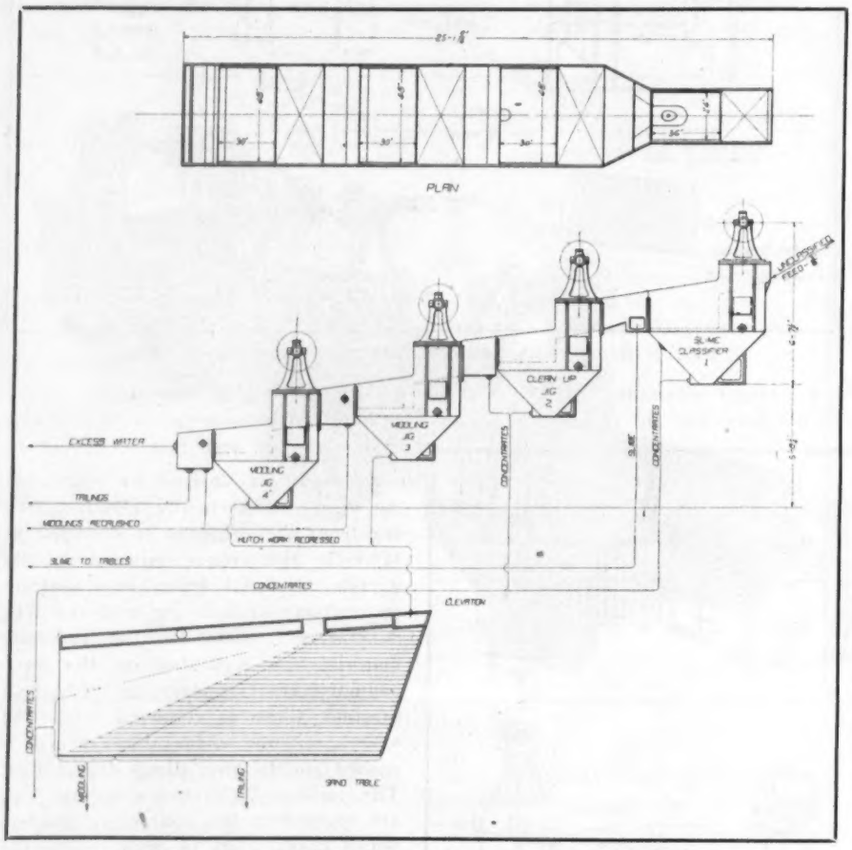


FIG. 4—A 250-TON UNIT APPLIED TO MEDIUM ORES

MERIT SYSTEM

Favored by American Manufacturers' Export Association.

The American Manufacturers' Export Association held its third annual convention at the Hotel Astor, New York City, on Sept. 20 and 21. The convention was devoted mainly to reports and discussions of what has been done during the past year for the expansion of the American export trade. The association also passed a resolution requesting the three leading presidential candidates to express their ideas on the consular service. It is desired by the members that the merit system, which has been the government's policy in the selection of consuls during the past seven years, be continued.

The association, whose membership at the opening of the convention numbered 108, has already increased the enrollment 10 to 15 new members, and expects to enroll at least 50 new firms during the next few weeks. The members were represented by about 160 delegates.

The new president of the association, elected Saturday morning, is Congressman W. C. Redfield, of the American Blower Co., Brooklyn, N. Y. The other new officers are: First vice president, M. de Moreira, of John Boyle & Co., Inc., New York City; second vice president, O. M. Smith, of Parke, Davis & Co., New York City; third vice president, W. I. Marsden, of the Yale & Towne Mfg. Co., New York City; treasurer, H. L. Gemberling, of the Sherwin-Williams Co., Newark, N. J. The directors are: W. S. Gavan, W. T. Clark, Jose Ma Menendez, A. W. Ransome, W. N. Dickinson and Alfred J. Jupp.

CAR BUYING

By Railroads Must be Heavy for Several Years.

Recent compilations made by leading railroad interests show to an astonishing extent how far the railroads of the country have fallen behind in their equipment purchases in recent years and what heavy buying in this line is before them during the next few years if they are to recover their normal position.

According to these compilations, there is now in use on all the railroads of the United States about 3,000,000 freight cars of all types. The natural wear and tear on these cars, as gaged from the practical experiences of leading railroad systems, is about 10 per cent. In other words, it is declared that for the railroads to maintain the up-keep of their car property in first-class condition, they must purchase approximately 300,000 cars each year. This is an estimate based upon the lives of the present types of cars as illustrated by the operating results of leading railroads.

Some statistical authorities do not credit this country with as many as 3,000,000 cars and their figures are approximately 2,500,000 cars. Under the ratio of 10 per cent wear, this means a necessary annual purchase of from 250,000 to 300,000 cars. In no year in recent times has the volume of car buying of the railroads been up to this level and in the present year, it also falls short of these figures, since total orders placed to date are approximately 100,000 cars, which indicates about 140,000 cars for the full year. The record of car purchases in other recent years from the accepted statistics has been as follows:

1911	133,000
1910	175,000
1909	90,000
1908	70,000

Under these conditions, it is pointed out by those making the compilation that very heavy car buying by the railroads during the next several years is a reasonable and a necessary expectation.

May Work Old Pits.—It is reported that the abandoned pits on Iron Hill, near New Castle, Del., are to be again put in operation. The old mine and adjoining property were purchased about a year ago by Ferdinand Keller, of Philadelphia, and some machinery is now being installed. The mine has not been operated in recent years.

The Canadian Tool Steel Co., Ltd., has increased the number of its directors from three to five.

BETTER CONDITIONS

Observed in Iron and Steel Industry Abroad.

A complete summary of the strong contemporaneous conditions existing in the iron and steel industry of the leading nations of Europe is made by A. A. Fowler, New York, partner of Rogers, Brown & Co., who has just returned from an extended tour of the British Isles and Germany. While abroad, Mr. Fowler made a very careful study of the foreign iron and steel situation from the viewpoint of different business fundamentals. In an interview for THE IRON TRADE REVIEW, he says:

Conditions in England

"Conditions both in England and Germany are much the same as they are here. The position of the pig iron trade throughout the whole world is undoubtedly a very strong one.

"There is quite a boom in English warrants, the price now, about 67s, being higher than they have seen at any time for 12 years. This activity seems to have been brought about by a combination of causes. Consumers, who for a long time covered only their hand-to-mouth requirements, have for the past two months shown a disposition to buy as far ahead as possible owing to the very large increase in demand for machinery and all finished products in connection with ship building, etc. The ship yards themselves are apparently so busy that they cannot accept all the business that is tendered to them.

Shortage in Pig Iron

"In addition to this very largely increased consumption, the shortage caused by the coal strike has had to be overcome. Apparently no one expected the strike to last as long as it did. The estimates now are that a shortage of no less than 1,500,000 tons was created by the stoppage of furnaces during the two months strike. Apparently most pig iron makers, expecting the strike to be of much shorter duration, oversold themselves heavily at that time, and are only now beginning to catch up with their deliveries.

"As for the future, conservative opinion is a little divided. Undoubtedly the general consumption is good and promises to continue for a year or more. The only doubtful feature for the future is the political situation. The government, as you know, is seriously embarrassed by the reception which has been given to its workmen's insurance act, and the very vigorous opposition to the home rule program. It is quite probable the present government may have to retire sometime within the next 12 months, and as there is no one vigorous Conservative leader yet in evidence, a general election would probably be somewhat unsettling to business. Prices, too, are so high that opinion is again divided. One Glasgow merchant, for instance, feels that, with the English makers catching up on deliveries, present prices are high enough. On the other hand he admits that the United States and Germany are apparently only beginning to wake up, and if business in both these markets continues to improve, Great Britain may see the present high price for warrants continue, and possibly even higher prices obtain. He points out at the same time that their consumers will probably not buy so freely now that prices have had such a marked advance and they feel the market may be somewhere near the top.

"Certainly there is not likely to be any let-up in business unless some serious political crisis occurs, and the statistical position of the market certainly points to a maintenance of present prices. Stocks at Middlesbrough, as you know, are now reduced to about 280,000 tons as against 540,000 tons a year ago, and 420,000 tons in 1910.

Much the Same in Germany

"In Germany the situation is much the same. In the last few weeks they have had a rise in all kinds of iron, which shows prices of pig iron and finished material that they have not seen for four or five years. The demand for pig iron is temporarily greater than the production. Every available furnace is in blast, and shippers are behind in deliveries. In fact, there is quite a marked scarcity of foundry pig iron. This makes it certain that present prices will obtain until the end of the year at any rate. What will happen next year it is impossible to predict. The syndicate has stopped selling, and will not yet give out prices for the first half of 1913. It seems likely that it will raise prices for that delivery, but it will, of course, take care not to put them at such a point that English pig could be imported in large quantities. Further than that, the new German iron works of Thyssen & Gelsenkirchen will commence regular production early in 1913, so that the German output will be materially increased. A pig iron famine in Germany does not, therefore, seem imminent; but everything points to continued consumption probably large enough to take care of the increased output next year.

"Austria is reported to continue having active business, but the prospect is that in 1913 there will be additional furnaces in blast, so that they will be able to cope with the home demand, and are not likely to import so much as they have this year.

The Crux of the Situation

"To emphasize the situation, it is interesting to compare the present rates of pig iron production in the three leading producing countries with those of 1911.

"Germany is now producing at the rate of 18,000,000 tons, against 15,500,000 tons in 1910.

"Great Britain is now producing at the rate of 12,000,000 tons, against 9,750,000 tons in 1911.

"The United States is now producing at the rate of 30,000,000 tons against 20,500,000 tons in 1911.

"It remains to be seen whether the world's consumption will take care of this tremendous increase.

"The opinion of bankers in London is very hopeful, both with respect to the continuance of good business and comfortable financial conditions, although higher rates for money seem inevitable in view of the increasing demand."

Grants Bonus for Foundry

Toronto, Can., Sept. 24.—The citizens of Owen Sound, Ont., on Sept. 14, adopted a bylaw granting a loan of $60,000 and a bonus of $4,000 for the purchase of a four-acre building site to Hugo A. Gutenkunst, of Milwaukee, for the establishment of a malleable iron industry in the town. The agreement calls for the erection of a plant costing not less than $100,000 to employ 150 men the first year. Work will at once be commenced on the plant, which will be in operation by the New Year.

Plan to Reorganize.—Plans for terminating the receivership of the Chattanooga, Tenn., Iron & Coal Co., Chattanooga, Tenn., are being made by the bondholders, who expect to buy the property at a sale and reorganize with C. F. Buek, who is now receiver, as president and general manager. The furnace at Chattanooga has been blown in.

THE IRON TRADE REVIEW

DEVOTED TO THE IRON, STEEL, MACHINERY AND FOUNDRY INDUSTRIES

Published Every Thursday by

The Penton Publishing Company

CLEVELAND

CHICAGO - - - - - - - - - - 1328 Monadnock Blk.
CINCINNATI - - - - - - - - - 503 Mercantile Library Bldg.
NEW YORK - - - - - - - - - - - 1115 West St. Bldg
PITTSBURGH - - - - - - - - - - 2148 49 Oliver Bldg.
WASHINGTON, D. C. - - - - - - 501 Metropolitan Bank Bldg.
BIRMINGHAM, ENG. - - - - - - - - Princes Chambers

Copies published three months or more previous to date of current issue, 25 cents each

All communications relating to changes of advertising copy, discontinuances, etc., must be received ten days prior to the next publishing date.

Subscription, United States and Mexico $4.00 per year.
Canada and other Foreign Countries $5.50 a year

Entered at the Postoffice at Cleveland as Second Class Matter.

Copyright 1912, by the Penton Publishing Co.

Cleveland, September 26, 1912

Different Kinds of Competition

A subscriber at Moline, Ill., writes as follows:

EDITOR THE IRON TRADE REVIEW:

I note that in your editorial of Sept. 12, page 502, you propose the teaching of political economy as a check upon unwise popular political movements. Excellent! And I suggest that THE IRON TRADE REVIEW start the educational campaign by elucidating for the benefit of its readers the principle of "Competition", as it is taught in the science of political economy.

E. H. PUTNAM.

Moline, Ill., Sept. 18.

In the editorial in question, an effort was made to show the importance of arousing people from their lethargy, such as was exhibited by more than half a million voters, who did not go to the polls in Ohio, on Sept. 3, to vote on proposed constitutional amendments. The official returns of the election disclosed how easily the voters might have been enlightened and brought to the polls if opponents of some of the radical measures had carried on the right kind of a campaign. As it was, the business men's organizations were divided into two classes, those which utterly opposed nearly all of the amendments, including some meritorious ones, and those which took no position on any of the amendments. And yet the amendment providing that in labor controversies no injunction should be issued except to protect physical property was defeated by 17,406 votes. This result shows that the people are not ready hastily to adopt all new and dangerous policies.

Now as to the particular campaign, which our correspondent suggests that THE IRON TRADE REVIEW start: "The elucidating of the principle of competition as it is taught in the science of political economy." Our views concerning competition are well known to our readers. These views may not be in harmony with the science of government as taught in colleges and schools today. The fact is that progressive people have come to look upon competition with new light and we know of no text book writer who has grasped the significance of the new developments in the business world connected with competition.

We believe in competition which is conducted in a spirit of fair dealing and is the product of brains and energy. We do not believe in competition which is utterly indifferent to the rights of competitors and is carried on with the determination to crush the life out of the weaker companies or individuals. We believe in the utmost frankness among business men. The old idea was that if competition was assured, consumers would be able to buy at low prices and everybody would be happy. Experience has shown, however, that unrestrained competition results temporarily in low prices, but ultimately in monopoly and high prices. Men are coming to see that it is possible to co-operate in business affairs, that competitors need not hate each other and that consultation is helpful to all. The five years since the panic of 1907 have taught many valuable lessons. The so-called Gary movement was of inestimable service not merely while the meetings were being held, but up to the present time, and its influence promises to continue for an indefinite period. By observing the better methods of conducting business during the past five years as contrasted with the merciless methods of earlier years, he who is in doubt on the subject of competition can educate himself and then start a campaign of educating his customers and competitors to appreciate the best business methods of today. We advise our friend from Moline to try this plan.

Washington Takes a Backward Step

The unwelcome news is received that the government will no longer publish advance sheets of the monthly import and export movement. As a result, our monthly summary of iron and steel imports and exports, which has usually been published in the first issue of each month, for the second month preceding, cannot appear until about the third issue of the month. The statistics from Washington will be at least two weeks later than formerly, and perhaps three or four weeks.

This is a long step backward, at the very time when there was a strong desire for the statistics to be presented more promptly. With the service furnished in the past, the statistics of the United States have been regularly more than one month later than the British statistics. The British Board of Trade furnishes a full report of the import and export movement of the United Kingdom usually on the fifth to the eighth day of the following month. It may be said that the United States is a big country and that it was justifiable for four or five weeks to be consumed, instead of less than one week, in presenting the figures, but now the time is to be lengthened to six or eight weeks.

The argument that this is a big country is not conclusive. If it is a big country, it should have big

facilities. The mails from distant ports are slower in the United States than in Great Britain, but they do not consume six weeks, nor even one week.

The question may well be asked what these statistics are really printed for. If they are simply a matter of record, like many of the government returns upon the publication of which large sums are expended, it is a question whether it is worth while to print them at all. If they are printed for the benefit of American industry, then a reasonable degree of promptness can be demanded. It is absurd that American business men should have to wait two months for the detailed statement of imports and exports, when British business men need to wait less than ten days for their own statistics.

Nature of Our Iron and Steel Imports

A quarterly statement in detail of our imports, recently instituted by the Bureau of Statistics, permits a much closer study of the iron and steel import movement than is possible with the regular monthly summary which is the basis of our monthly presentation of iron and steel imports and exports. The latest quarterly statement is for the first quarter of the current year, giving in detail the imports for consumption according to the various classifications made in the tariff law, with the rates of duty assessed and the duties collected. Even by radical condensation, a complete statement in these columns is impossible, for between 300 and 400 items are involved in the iron and steel schedule, so minutely have the rates of duty been prescribed in the existing tariff. It does not, of course, follow that the minuteness of detail in the framing of the tariff law guarantees that there is a scientific classification, for even the most cursory glance at the schedule prompts an opposite conclusion. The schedule is complicated but not consistent.

In the monthly statement of imports, ferro-manganese, ferro-silicon, spiegeleisen, etc., are all classed as "pig iron". In the quarterly statement the descriptions are carefully distinguished, the details being as follows:

Pig Iron Imports—March Quarter—Gross Tons

Ferro-manganese	20,593
Ferro-silicon, 15 per cent and less	.....
Ferro-silicon, over 15 per cent	1,348
Spiegeleisen	50
All other	4,755
Total	26,746

There were no imports of blast furnace ferro-silicon in the March quarter, nor in the two preceding quarters. The spiegeleisen imports shown above were abnormally small, since such imports amounted to 2,805 tons in the December quarter and 4,815 tons in the September quarter. It may be said that our total pig iron imports have been averaging about 10,000 tons a month, including about 6,000 tons of ferro-manganese, small quantities of electrolytic ferro-silicon and spiegeleisen and 2,000 to 3,000 tons of ordinary pig iron, most of which is probably imported on the Pacific coast.

Of steel bars, billets, blooms, ingots, etc., the imports in the March quarter amounted to 9,854,811 pounds, valued at $664,728 and assessed duties of $144,185. This is an average value of 6¾ cents a pound, and the largest quantity was of steel valued between 7 and 10 cents a pound, which carries a rate of duty of 1.9 cents a pound. Steel valued at not above 1.3 cents a pound was imported in the quarter only to the extent of 1,990,079 pounds, at a rate of duty of 0.3 cent a pound.

The total imports of machinery in the March quarter amounted to $1,887,885, on which the duty collected was $817,542. The machinery imports have been averaging $7,000,000 a year, while our machinery exports in the past year were $115,000,000.

The total iron and steel imports, excluding ore and including machinery, cutlery, etc., with the duties collected, have been as follows:

QUARTER ENDED.	IMPORTS.	DUTIES.
September, 1911	$6,333,093	$2,183,039
December, 1911	6,819,884	2,257,482
March, 1912	6,412,947	2,143,577

The Commercially Sound Rail

Engineers of different nations in discussing the subject before the recent meeting of the International Association for Testing Materials, in New York, laid stress upon the obvious truth that to produce a sound steel rail requires a sound ingot. It was pointed out that the prevalent practice of testing three of 30 or six of 30 ingots of a heat is not conclusive proof against the dangers of segregation, piping and blow-holes in the rail. Some of the American engineers, several eminent ones, in fact, advocated that not a few selected specimens, but that every ingot of the heat be subjected to the same tests in order that all the steel to be rolled into the rail might be similarly proved.

Though there was a general appreciation expressed of the co-operation of the rail makers with the railroads in seeking the improvement of rail quality, some of the engineering representatives of the railroads, as was to be expected, were inclined to criticize the manufacturers for forcing them to exercise constant vigilance and expensive tests for safeguarding the quality of the rail. They contended that the whole responsibility for best quality rested squarely with the steel makers.

It is apparent that in the present stage of the rail problem, the commercial aspect of the sound rail, apart from all scientific requirement or prescription, occupies a position of first influence. As Capt. Hunt declared: "Getting sound ingots commercially is the solution of the whole trouble." It cannot be doubted that the rail makers will follow specifications for individual tests for all the ingots of a heat or other similar methods for demonstrating the quality of every inch of steel, provided they are sufficiently compensated for the extra cost and prolonged manufacturing operations. The railroads have not always been willing to pay the extras for getting the superior quality comparable to that of the more expensive high grade steels. Until the equities of this phase of the question are finally adjusted, discussions of scientific excellence will fall short of full practical weight.

MEN OF THE IRON TRADE

A. A. Fowler, New York resident partner of Rogers, Brown & Co., returned last week after having been abroad since about the middle of June. Mr. Fowler spent much of his time in the British Isles.

Irwin B. Laughlin, former treasurer of the Jones & Laughlin Co., has been promoted from first secretary of the American embassy at Berlin, to first secretary of the embassy at London.

J. McA. Duncan has been appointed sales manager of the Westinghouse Electric & Mfg. Co., for the Pittsburgh district, succeeding W. F. Fowler, who resigned to accept a position with the W. S. Kuhn corporation.

H. W. Frister has been made salesman for the Richmond Iron Works, Richmond Furnace, Mass., manufacturer of charcoal pig iron. Mr. Frister was formerly connected with the New York office of Rogers, Brown & Co., as a salesman.

Guy E. Tripp, chairman of the board of directors, and James C. Bennett, controller and secretary of the Westinghouse Electric & Mfg. Co., Pittsburgh, have left for Europe, where they will visit foreign interests of the company.

Cecil Grenfell, chairman of the executive committee of the Southern Iron & Steel Co., Birmingham, Ala., has returned from a visit in Europe. It is expected that some definite announcement will be made soon, relative to the plans of the company.

President James A. Farrell, of the United States Steel Corporation, expects to attend the christening of the new steel steamer of the Pittsburgh Steamship Co., which is to be named the James A. Farrell. The christening will be held on Sept. 28, at the Lorain, O., shipyards.

F. C. Schwedtman, of St. Louis, has become a heavy stockholder in the Racine - Rattley Co., manufacturing farm implements and wagons. It is likely that Mr. Schwedtman will become actively identified with the management of the Illinois shops of the company at Alton.

Thomas C. Gilchrist has resigned as superintendent of the Youngstown, O., foundry of the United Engineering & Foundry Co., with which he had been associated for 49 years. Employes of the company presented Mr. Gilchrist a watch and chain and Odd Fellows charm.

T. Poole Maynard, formerly assistant state geologist of Georgia, has opened an office as mining and consulting geologist at Chattanooga, Tenn., where he will make examinations and reports on mineral properties, both developed and undeveloped, including ore deposits.

K. F. Nystrom has been appointed mechanical engineer of the Acme Supply Co., Chicago, with offices in that city. He was formerly designing engineer of the Southern Pacific railway and later was associated as assistant mechanical engineer with the American Car & Foundry Co., New York, at the St. Charles, Ill., plant.

Lewis Hennick, who has been prominently identified with the development of the warehouse business of the United States Steel Corporation in recent years, has associated himself with A. M. Castle & Co., Chicago, iron and steel jobbers. The Castle company, as announced, is about to begin the erection of a large warehouse in Chicago.

James H. Bowron, formerly receiver for the Southern Iron & Steel Co., Birmingham, Ala., was elected trustee at a creditors' meeting and will take charge of the trusteeship until the bankruptcy case is closed. As receiver Mr. Bowron read a report showing the company to be in good condition so far as operation and business generally are concerned.

Chas. P. Williams, who has been eastern agent for the Chicago Railway Equipment Co., has resigned to become associated with the National Lock Washer Co., making his headquarters at the Chicago office. Mr. Williams was formerly connected with the C., M. & St. P., Michigan Central, Soo Line and Canadian Pacific railroads, and with the M. J. Holden Co., Montreal.

A. J. Druss, for 20 years associated with the J. I. Case Plow Works, Racine, Wis., in various executive capacities, has resigned to assist in the organization and management of a $100,000 corporation now being organized to engage in the manufacturing field. Frederick Osius of Racine is one of the chief promoters. The nature of the company or its product is being kept secret until the plans mature.

Clyde P. Craine has been appointed manager of sales of the Pittsburgh Shafting Co. of Detroit, Detroit, succeeding in that capacity the late Harold G. Willson. No announcement has been made as to the successor to Mr. Willson as secretary and manager. Mr. Craine has been identified with the iron and steel trade for a number of years and for the last two years has been associated with the sales department of the Pittsburgh Shafting Co. of Detroit.

Harry W. Goddard, of Worcester, Mass., president of the Spencer Wire Co., with plants in Worcester and Spencer, Mass., is to present a hall with a seating capacity of 300 to Wire Village, in Spencer, where Mr. Goddard recently had an athletic field laid out at his own expense. The hall will be of wood, 30 x 70 feet, two stories. It will be built from plans prepared by Mr. Goddard and under supervision of the Spencer Wire Co. Benefit Association, of which John J. Theobold, superintendent of the Spencer plant of the wire company, is president.

Henry W. Jacobs has recently resigned as assistant superintendent of motive power of the Atchison, Topeka & Santa Fe railroad, to become president of the Oxweld Railroad Service Co., with offices in the Railway Exchange building, Chicago. The Oxweld Service Co. is a subsidiary of the Oxweld Acetylene Co. Mr. Jacobs is also a director of the Jacobs-Shupert U. S. Fire Box Co., of Chicago. He was born in Atchison, Kans., on Sept. 28, 1874. In 1900 he entered the service of the Burlington railroad as a machinist and successively filled the positions of toolroom foreman and shop demonstrator. In 1903 he was appointed general shop demonstrator for the Union Pacific and in 1904 resigned from this company to become engineer of shop methods on the Santa Fe system. He was especially active in the development of the efficiency system at the Santa Fe shops, under the direction of Harrington Emerson.

PRICE RETIRES

From Cambria Presidency.—Donner Will Be Chairman of Board.

At a meeting of the board of directors of the Cambria Steel Co. at Philadelphia, Sept. 19, the resignation of President Chas. S. Price, of the company, under date of Sept. 17, was submitted by Chairman E. B. Morris of the executive committee. Poor health, which resulted in Mr. Price being granted a leave of absence two months ago, is responsible for his resignation. Expressions of regret were adopted by the board and action upon the matter passed over to a future meeting. Mr. Price became president of the Cambria Steel Co., March 15, 1910, succeeding Powell Stackhouse. Prior to that time, he was general manager and vice president of the company, posts which he had reached after many years' service with the company, which he had joined in June, 1876, as an employe of the Cambria Iron Co. Mr. Price is 60 years of age.

A further important change in the organization of the Cambria Steel Co. is scheduled with respect to the chairmanship of the executive committee. Mr. Morris, the present chairman, is expected shortly to retire, but will remain on the committee. An official statement given out by the board pertaining to this matter is as follows:

"It was also stated that Mr. Morris desired to be relieved of the responsibility of the work of the executive committee as to practical supervision of the works at Johnstown, Pa., which it was impracticable for him to assume and which had been made possible heretofore only through the close co-operation of Wm. H. Donner, another member of the committee. He asked that Mr. Donner be given the chairmanship."

WILLIAM H. DONNER,
Proposed Chairman of the Executive Committee of the Cambria Steel Co.

Mr. Donner has been closely associated with Henry C. Frick in various enterprises in the steel industry in the past. Mr. Frick is now the largest individual holder of Cambria Steel Co. securities.

Effingham Buckley Morris

Effingham Buckley Morris is the son of Israel Wistar Morris, the noted mining engineer, and comes of a stock identified with the city of Philadelphia from its foundation. His direct progenitor, Anthony Morris, was the justice of the supreme court under William Penn, in 1692, and the second mayor of the city. Effingham Buckley Morris was born in Philadelphia, Aug. 23, 1856, and was graduated from the University of Pennsylvania in 1875 with the degree of bachelor of arts, and subsequently received the degree of doctor of laws at the same institution.

Mr. Morris began the practice of law, associating himself with P. Pemberton Morris, LL.D., to whose practice he succeeded upon the latter's death. His position as a lawyer and his influence in municipal affairs were rapidly established. For some years prior to 1887, he was general attorney for the Lehigh Valley Railroad Co., and solicitor for the Girard Trust Co., the oldest trust company with one exception in Pennsylvania. In 1887, he was elected to the presidency of the latter institution, which at the present time has a capital and surplus of $10,000,000. When the Pennsylvania Steel Co. became embarrassed in 1893, the Girard Trust Co. was appointed its receiver, with Major L. S. Bent. Mr. Morris was chairman of the reorganization committee, which successfully restored the company to solvency, and he became its president in 1896, for the first year of the existence of the new company as part of the plan.

Wm. H. Donner

William H. Donner, who was recommended as chairman of the board of directors of the Cambria Steel Co., by Mr. Morris, is well known in iron and steel circles througout the country and has established a commendable record through his ability and success as an organizer and manager. For a number of years, he has lived in Pittsburgh, where he has taken an active interest in the civic and commercial developments of the city.

EFFINGHAM B. MORRIS,
Chairman of the Executive Committee of the Cambria Steel Co.

Mr. Donner was born in Columbus, Ind., and attended public schools and college in that state. In 1894 he organized the National Tin Plate Co., at Anderson, Ind., and acted as treasurer and manager of this company. Four years later, as a result of his initial success as a tin plate manufacturer, he organized the National Tin Plate Co. of Pennsylvania, and built a plant at Monessen, Pa. The history of this city, one of the busiest industrial towns in Pennsylvania, begins with the building of the National Tin Plate works. Both the Anderson and Monessen plants were absorbed by the American Tin Plate Co. in December, 1898.

The following year, Mr. Donner again entered the industrial world as an organizer, expander and builder. He organized the Union Steel Co., of Pittsburgh, and erected a plant at Donora, Pa., which was founded by Mr. Donner and named in his honor. In 1902, this company consolidated with the Sharon Steel Co., of South Sharon, Pa., which has since been named Farrell in honor of James A. Farrell, president of the United States Steel Corporation. A short time later, the consolidated companies, which were known as the Union Steel Co., were taken over by the United States Steel Corporation.

Mr. Donner has been a member of the board of directors of Cambria Steel Co. for several years. He has taken an active interest in the affairs of the company, and is fully equipped to enter his new work.

Dr. Moldenke Indulges in Some Plain Talk

In His Report to the American Foundrymen's Association Convention—Explains Decrease in Membership—Malleable Men Urged to Get Out of Their Shell

The report of the secretary-treasurer of the American Foundrymen's Association, Dr. Richard Moldenke, to the convention at Buffalo, is as follows:

We are just recovering from one of the worst periods of depression the foundry industry has passed through in many a year, and hence it is little to be wondered at that our association has suffered correspondingly. Fully 15 per cent of the members have either resigned or had to be taken from the rolls this year and it may be of interest to state that a canvass of the industry just concluded has revealed a surprising number of changes brought about by financial stress.

A vigorous campaign for new members has, however, served to recover some of the lost ground, so that today we have 626 members, with more coming in by every mail—showing better than in any other way the resumption of business activity and business optimism. One point, however, needs mention. By far the greater loss in our membership was due to the withdrawal of the supply houses. Various reasons were given for this, when given at all. The principal one was that the exhibition was giving them all the publicity they could hope for and membership was not needed. Now in an association like ours, composed as it is of men who are striving to advance their industry, no matter what sacrifice in capital and energy it may bring upon them as individuals, the presence of the sellers of supplies is, as a rule, an unwelcome one, and indeed, many associations expressly keep them out of membership. With us, however, it is recognized that the man who sells us the supplies we need is apt to know very much more about them than we do, and hence we want him with us to talk things over, see where improvements can be made, and to arrive at an understanding which will eliminate unnecessary loss of treasure and time by studying our conditions better. The time is rapidly coming when we as an association will go about standardizing our supplies, and indeed today there is a call for a number of such standards. The first will come before you at this convention—namely the preparation of standard specifications for core binders. We now know sufficient on this subject to enable us to lay down definite requirements for this class of materials, and a committee to do so is recommended for appointment at this meeting. Now, unless the manufacturers of core binders are members of the association, to which membership they are heartily welcome, and to part membership of the committee they are entitled, they will have nothing to complain about, if the eventual specifications are in their judgment drawn too tight. They will have neglected their chance to be considered.

It finally boils down to the plain statement that unless the men who sell us goods show their honest desire to advance with the times by holding membership in the foremost association of their customers and working with them for improvement, it will pay these customers to scrutinize carefully every solicitor for business and cut those out who have shown themselves either passive or opposed to advancement. It will not pay to do business with them.

Lack of Records

The office of the secretary has been extremely busy these last 16 months, as will be seen from the magnificent volume we are able to issue for last year's Proceedings. The investigations on the molding sands have also progressed, and a large series of tests was published. A preliminary report is given at this meeting. The subject is so fascinating that much more work will be done, new points being brought out all the time during the course of the experiments. It is hoped that the results will indicate to the sand supply man just how he can treat his product to make it more valuable to the foundryman, and incidentally to himself.

Perhaps one prominent thing that has been brought out by this year's correspondence is the almost total absence of systematized records by individual foundrymen on what they have received for their castings. There seem to be few foundrymen who have tried to classify the castings they have sold, and to average for the year just what these classes of castings have brought them.

With our much-vaunted American efficiency of system, this is a very weak point, and we are far behind European countries in so systematizing the office costs, beginning where manufacture leaves off, that we may know just what work we can do best and then go after it. Our association does not touch the price question in its deliberations, hence this point is given to the individual members for their personal consideration.

Late Receipt of Papers

The change in date for our convention, necessitated by the extreme winter conditions all over the country and consequent delay in the Buffalo preparations, played rather sad havoc with the program of papers—our good contributors not caring to write papers during the summer season. The result was the receipt of some 26 papers during the week before the convention, with consequent incipient mental paralysis from the secretary to the printers. If, therefore, the quality of the output to be discussed at this convention may seem to some not up to their expectations, the following should be remembered: The papers are voluntary contributions of busy men in what is becoming a very restricted field for good papers. While we urge promptness in getting contributions to the press, we are beholden to the courtesy of our contributors, and must follow their wishes rather than the other way round. The foundry education required today is not taught in schools, but by hard life experience, hence every year sees at these conventions men who have just become acquainted with our friends silicon and sulphur. Papers must not be written above the quick comprehension of these foundrymen whom it is our work to help along to efficient production for the good of the industry and of the country. If, therefore, papers repeat what is known to most of us, allowance should be made, and if every paper simply contains one point that makes some of us think, the convention has been a success.

Taking Deep Interest

A remarkable interest is being taken by the malleable casting and steel casting men in our association at the present time. It augurs well for the industries in question, as a frank discussion of methods of manufacture eliminates waste, as well as educates the consumer up to what can be done in the foundry and what should not be expected of it. We sincerely hope that these two branches of the iron industry will continue to make our conventions the medium of their technical deliberations right along, and thus increase our publications in value to the membership at large. The steel castings session of last year has attracted widespread attention, and foundrymen found the discussion of utmost value in clearing up disputed points. The present program promises further food for thought in this direction.

One very prominent thing should be mentioned here. In the malleable casting trade—as is known by personal observation of your secretary—there is exactly the same room for a full session's work at this convention. The lack of knowledge in view of what has been published is actually lamentable at times, and the malleable men owe it to themselves to get out of their shell, as the steel casting men have done, and get busy in the public light. The consumer has a right to it.

The government has almost concluded the investigations on the cupola melting problem, at the Pittsburgh plant of the United States

bureau of mines. You will have a preliminary report at one of the sessions, through the courtesy of Dr. Holmes, the director, and our warm friend.

Industrial Education

Industrial education is coming to the front more and more in this country, and your able chairman of the committee on industrial education is making a name for this association in educational circles. It is becoming clearer every day that if we are to hold our own—not to speak of progressing—in the rush of the nations toward a future that seems as unknown as it is terrifying, we must have compulsory attendance in continuation schools in our educational system. We should give thought, very earnest thought, to the subject, not as manufacturers, nor as working men—for we are all working men—nor as educators only, but as plain citizens who see a menace before us affecting the future of the country. There are not men enough to do the world's work at the present time, apart from all questions of compensation.

Finances

The financial situation of the association is distinctly good. It is the aim of your board of officers to give as much literature to the membership and to economize on the other expenses incident to conducting the association, as possible.

Receipts for the fiscal year July, 1911, to July, 1912:

Balance	$ 366.85
Dues, sales, etc	4,795.24
Total	$5,162.09

Disbursements for same period:

Transactions	$2,775.48
Printing	84.05
Salaries	1,200.00
Convention expenses	255.38
Sundries	67.62
Postage	411.00
Total	$4,793.53

Leaving a balance in the treasury July 1, 1912, of $368.56.

The molding and sand tests have exhausted the special fund collected several years ago, and the work will go on the account of the association hereafter as it can be handled.

Sister Societies

The relations with our sister societies across the ocean have been most pleasant, and particular mention should be made of the development of the Foundrymen's Association of France. The office of the secretary of our association has been heavily drawn upon during the year for technical information, showing how the shoe has pinched in many establishments owing to the deplorable financial and manufacturing situation just passed. We are always glad to assist in every way possible and urge our members not to hesitate to write when they are in doubt.

The secretary finally has to thank the board and membership at large for the uniform courtesy extended him in his work, and hopes that the same interest may continue which has in the past been so potent in building up the standing of the association in the regard of the industrial world.

ACQUIRES OLD PLANT

Flexible Steel Belt Co. To Begin Operation.—Bridgeport Industries.

Bridgeport, Conn., Sept. 23. — The plant of the Bridgeport Foundry & Machine Co., Bridgeport, Conn., has been leased to the Flexible Steel Belting Co., a firm recently organized in Bridgeport. The Bridgeport Foundry & Machine Co. recently disposed of its machinery and ceased operations. The lease took effect on Sept. 1, but the new company has not yet taken any steps toward the installation of the necessary equipment. Morris W. Seymour, a Bridgeport attorney, is interested in the Flexible Steel Belting Co. The Bridgeport Foundry & Machine Co. was operated as a machine shop until last spring by the proprietors of the Bridgeport Deoxidized Bronze & Metal Co., also of Bridgeport.

The Coulter & McKenzie Machine Co., Bridgeport, Conn., is considering the installation of an electric traveling crane system. The foundry is now equipped with three hand operated jib cranes. As soon as it is definitely decided to make the change, the company will be in the market for two 10-horsepower overhead electric cranes having a span of about 63 feet, and also a runway about 150 feet long.

The Bridgeport Brass Co., Bridgeport, Conn., manufacturer of copper and brass tubing, sheets, etc., is erecting a tube mill addition, 50 x 360 feet, to its Union branch in Bridgeport.

The Crane Valve Co., Bridgeport, Conn., is just commencing work on the foundations for a new gray iron foundry 100 x 250 feet. It is expected to be ready for operating by March 1, 1913. The new foundry will embody many unique features and will represent the last word on the economical production of valve castings on a large scale.

May Purchase Furnace

Negotiations have been commenced with the state of Texas through Governor Colquitt, by C. G. Vaughn and J. J. Skinner, Philadelphia, for the purchase of the state's blast furnace at the Rusk, Tex., penitentiary. The two Philadelphians announce that with associates they have optioned a considerable area of eastern Texas iron ore lands and plan to build a mill at Texarkana, Tex.

MARKETS DEFINED

Commerce Commission May Take Such Action Soon.

The Interstate Commerce Commission may be the body in a few years to decide in what markets every manufacturer or class of manufacturers may do business. Two decisions made by the commission within a few days lead to that observation.

The decision of greatest interest to the iron and steel business is the denial of the application of the Louisville & Nashville and other southern railroads for permission to continue the present bases and adjustment of rates on cast iron pipe and fittings from the southern foundries to the territory north of the Ohio and Potomac rivers and west of the Mississippi. The denial of that application means that the railroads concerned must make rates to that territory either in harmony with those that prevail in southeastern territory, or else they must bring the rates in southeastern territory into harmony with the rates prevailing west of the Mississippi and north of the two rivers that divide the north from the south.

In the final analysis the proposition may be stated in this form: Either the southern railroads must make rates to the territory as outlined so high that southern founders cannot compete with founders nearer the points of consumption, or they must lower their rates in southeastern territory so much that the southern market will be seriously disturbed.

The denial of the application was made under the amended "long and short haul" section. No matter what competitive conditions may exist at the more distant point, no railroad may charge more for the short than for the long haul without having first obtained the permission of the commission, which also has the authority to say to what extent there may be a departure from the absolute rule that more may not be exacted for the short than for the long haul.

The other decision by the commission holds that the sugar refiners of New Orleans are not entitled to do business in Cleveland, Toledo and Detroit in competition with the refiners of Philadelphia and New York. That is almost the verbatim language of the commission's holding, and the railroads are going to accept the decision without a contest.

MANY EMPLOYERS

Accept the New Workmen's Compensation Law in Michigan.

Employers of Michigan are rapidly filing their acceptance of the new workmen's compensation law of that state, which became effective Sept. 1. Already more than 3,100 employers have filed their acceptance with the industrial accident board. At a recent meeting of employers and representatives of liability insurance companies with the industrial accident board at Lansing, a great many questions were presented and discussed. John E. Kinnane, chairman of the board, read extracts from factory rules and application blanks which seemed to indicate that the authors were trying to evade or reduce their liability under the new law. Mr. Kinnane denounced such practice as unfair, and was heartily supported by members of the Employers' Association of Detroit, who were present. The board has made request of corporations which elect to carry their own risks that they provide detailed statements of their assets and liabilities.

Disturbed By American Competition

Birmingham, Eng., Sept. 16.—A mild sensation was caused last week by the action of the Manchester city council in placing a large contract for special tram rails with the Lorain Steel Co., of Johnstown, U. S. A., rejecting the tender of Edgar Allen & Co., Ltd., of Sheffield. The American tender was for £10,231, as against £11,088 quoted by the Sheffield firm.

Mr. Bowie, in moving the acceptance of the American tender, pointed out the difference of £807. He said the American goods were equal in quality, and delivery would be made more quickly. In these circumstances he felt that it would be wrong to throw away £800 of the ratepayers' money. Mr. Butterworth, seconding, appealed to the council to disregard politics, and act on strictly business principles. The tramways committee had experience that the quality of the articles supplied by the Lorain company was second to none. Alderman Bowes said the Lorain company would commence delivery in three months, and complete the order in eight months, whereas the Sheffield firm would commence delivery in four months and complete the order in 12 months.

The loss of the order has caused some grumbling, but as the Sheffield works have any quantity of orders, they are not much disturbed. In Sheffield it is admitted that this class of work is very profitable.

COREY IS OPTIMISTIC

About Business Conditions — Favors Wilson and Tariff Reduction.

William E. Corey, former president of the United States Steel Corporation, takes a very optimistic view of the present trade conditions. In an interview given out at New York upon the eve of his departure for a hunting trip in the Rocky Mountains, Mr. Corey spoke of business conditions in the following manner:

"Prosperity is in evidence, not only in this country, but in Germany and Great Britain. The steel industry, which is taken by many as the safest barometer of business, is in a flourishing and substantial condition. Orders for steel are coming in in excess of the capacity of the mills and the industry will enter the new year with well filled order books and with prospects that 1913 will establish a new high record in output.

"The electrical development of the country and the new uses to which copper is being put, one of which is its growing use as an alloy with steel, account for the rapid increase in consumption of the metal.

"The revival of business in general is a natural sequence of restricted consumption over the last several years. The promise of large crops has strengthened confidence and consumers are anxious to replenish depleted stocks.

"I believe Mr. Wilson's election will do more toward strengthening confidence and establishing commerce and industry on a more sound and healthy basis than the election of either Taft or Roosevelt. I am in favor of a gradual reduction in the tariff, on what might be termed a sliding scale, until, say, in five years there would be no tax on the actual necessities of life. In other words, the elimination of the duty on such classes of products that are responsible, in part, for the constant advance in the cost of living."

A report that trouble has been encountered with the foundations of the plant of the Indiana Steel Co., at Gary, Ind., because of the sandy soil of the lake shore is denied by officials of the United States Steel Corporation.

RECORD PRODUCTION

Made by Lake Superior Corporation Last Year.

The Lake Superior Corporation has just issued its annual report. Its balance sheet as of June 30 last, compares with the previous year as follows:

Assets:—	1912.	Decreases.
Investments	$48,821,849	*$1,246,653
Subsidiary balance	841,654	4,765,440
Misc. assets	152,819	*126,840
Deposit	604,510	*604,510
Discount	.....	204,800
Total	$50,420,842	$2,992,217
Liabilities:—		
Capital stock	$40,000,000	
First mortgage bonds.	5,800,000	
Three-year notes	.....	$2,500,000
Income bonds	3,000,000	.....
Advances and bal. due	931,857	214,087
Misc. liabilities	68,489	16,600
Suspense acct.	1,940	293,224
Int. on inc.	150,000	* 75,000
Reserve, etc.	468,556	43,315
Total	$50,420,842	$2,992,217

*Increases.

In part the report says:

"The directors have pleasure in reporting increased earnings, notwithstanding the fact that new construction is not yet completed and that operations have been greatly interfered with in consequence. The volume of business has been maintained, and in view of this and of the satisfactory prospects, your directors feel warranted in paying interest on income bonds at the rate of 5 per cent for the year. The steel company's mill has been in continuous operation. The output for the year figures in tons, as follows:

	1912.	Increases.
Pig iron	258,979	88,626
Steel rails	241,729	33,446
Merchant mill material	39,466	39,466

"It will be seen that the production of pig iron and steel rails was the largest yet attained. The new blast furnace, as well as the coke ovens, are producing in accordance with expectations.

"As previously intimated, new construction is not yet completed, and the work is still being continued under somewhat adverse circumstances. Labor, in particular, is difficult to get on account of the demand in other directions, but it is expected that all construction work now on hand will be completed before winter."

Make Forged Wheels.—With a capital of $1,000,000 a charter has been granted to the Dominion Forged Steel Car Wheel Co., with head office in Ottawa. The incorporators are Messrs. J. R. Osborne, J. W. Gauvreau, F. Lockman. Local capital is behind the enterprise, but the shops will be located at Montreal.

LATEST MACHINERY NEWS COLLECTED IN LEADING MANUFACTURING CENTERS

In New York, business in machinery continues good. One new list of considerable size has appeared. No action has been taken on the lists previously published in THE IRON TRADE REVIEW. *Business at present is confined to small lots. It is reported from Philadelphia that the Chesapeake & Ohio railroad has submitted a list of machinery specifications. In New England, the Boston & Maine railroad, which put out a list several weeks ago, is inquiring for some more miscellaneous equipment, including turntable tractors, etc. The outlook continues very good, and New York dealers say that another large volume of inquiries is about to come out. It is stated by one authority that no less than seven railroads are preparing to submit new lists. Buyers in the New York market last week included the E. D. Jones & Sons Co., Pittsfield, Mass.; the Baldwin Locomotive Works, Philadelphia; the General Electric Co., and others.*

In Pittsburgh, no especially large inquiries have been received during the past week, although there has been the usual demand for single tools. Some of the dealers say that orders this month are not so heavy as those of August. Dealers have been unable to obtain as satisfactory prices as desired, although little complaint is heard, as prospects for the future are bright. The buying movement on the part of the railroads in all parts of the country is especially welcomed and new railroad lists are expected to be issued in the near future.

In Chicago, price advances have checked the volume of business in the machinery market, at least temporarily. Dealers also attribute the lessened activity to the fact that this is a between-season period and are anticipating a very heavy fall movement.

In Cleveland, the machine tool business is heavy, divided into small lots, however, but aggregating a considerable volume. The rush of orders in evidence during the past two months continues and the business for September has been satisfactory. Pressure for deliveries is noticeable, and the inability of many works to handle the business is becoming more evident. In some cases, district offices have been notified that deliveries on certain lines of tools can not be guaranteed before the first of next year.

Machine Tools

The purchasing department of the Morgan's Louisiana & Texas Railroad & Steamship Co., at New Orleans, La., has issued a large list of specifications for machinery and other equipment to be installed in the car and locomotive repair shops of several Texas railroads. The list was mailed at New Orleans on Sept. 19, and was received by New York houses on Monday. Rush bids are asked for. The list is as follows:

For Morgan's Louisiana & Texas Railroad & Steamship Co., Houston, Tex.

One 90-inch, right hand, quartering machine, motor-driven.
One radius grinder, motor-driven.
One 30-ton, hydraulic, rod bushing press.
One No. 3 universal miller, belt-driven.
One 18-inch x 4-foot centers, swing lathe, belt-driven.
One 24-inch x 8-foot centers, engine lathe, motor-driven.
One 16-inch x 8-foot bed, tool room lathe, belt-driven.
One 16-inch x 4-foot centers, engine lathe, belt-driven.
One 2-inch turret lathe, motor-driven.
One 36 x 36-inch x 12-foot planer, motor-driven.
Four No. 5 wet tool grinders, Safety Emery Wheel Co., Springfield, O.
One 26-inch shaper, motor driven.
One 4½-inch, Underwood, cylinder boring bar.
One 28-inch, Underwood, valve facing machine.
One Power hack saw, belt-driven.
One 2-A pipe cutting and threading machine.
One 1¼-inch, 4-spindle, Angel cock grinder, motor-driven.
One 15-inch planer and matcher, motor-driven.
One cylinder knife grinder for above machine.
One Pedestal knife grinder for above machine.
One No. 2 Fay & Egan automatic cut-off saw, motor-driven.
One No. 66 Fay & Egan patent power mortising machine, belt-driven.
One 12-foot 10-inch x 14-foot 10-inch, oil-burning, annealing and flanging furnace.
One 1,500-pound, single-frame, steam hammer.
One 5-inch Ajax forging machine, motor-driven.
One No. 2 Atlas improved Moss picker, motor-driven.
One 120-ton, 60-foot 4-inch span, electric traveling crane with attachments for handling locomotive parts.
One 15-ton, 58-foot span, electric traveling crane.
One 15-ton, 61-foot 4-inch span electric traveling crane.
Three 300-horsepower water tube boilers.
One 2,500-cubic foot per minute air compressor, steam-driven.
One Duplex boiler washing pump, Worthington make.
One 50-ton, 57-foot span electric traveling crane with 10-ton auxiliary hoist.
One 15-ton, 57-foot 6-inch span electric traveling crane.
One hot water boiler washing and water changing system.
Two electric welding outfits.
(All electric motors called for in the above should be 220-volt, 60-cycle, 3-phase.)

For Houston & Texas Central Railroad, Houston, Tex.

One electric turn-table tractor for 80-foot turntable.

For Galveston, Harrisburg & San Antonio Railroad Co., Glidden, Tex.:

One pneumatic turntable tractor for 80-foot turntable.

For Galveston, Harrisburg & San Antonio Railroad Co., San Antonio, Tex.:

One 1,800-cubic foot air compressor.
One pneumatic flanging clamp, 12 inches between housings, 80 to 100 pounds air pressure.
One 4½-inch x 8-foot portable locomotive cylinder boring bar.
One No. 3 milling machine.
One 16-inch x 8-foot bed tool room lathe, belt-driven.
One 16-inch x 8-foot portable engine lathe, taper attachment, motor-driven.
One 15-inch brass lathe, belt-driven.
One 26-inch crank shaper, motor-driven.
One 36-inch radial drill, motor-driven.
One 52-inch vertical boring mill, motor-driven.
One Underwriters' Blake-Knowles fire pump, including governor, 1,000 gallons per minute.
(All electric motors called for in the above should be 110-volt, 60-cycle, 1-phase).

For Galveston, Harrisburg & San Antonio Railroad Co., Valentine, Tex.:

One pneumatic turntable tractor for 80-foot turntable.

For Galveston, Harrisburg & San Antonio Railroad Co., Sanderson, Tex.:

One pneumatic turntable tractor for 80-foot turntable.

For Galveston, Harrisburg & San Antonio Railroad Co., El Paso, Tex.:

One 50-ton hydraulic driving box press, including pump, belt-driven.
One 16-inch x 36-inch centers engine lathe, motor-driven.
One 16-inch, 3-inch hole, turret lathe, motor-driven.
One plate bending rolls, 12 feet 2 inches between housings, motor-driven.
One 3½-inch Ajax forging and up-setting machine, motor-driven.
One 300-horsepower water tube boiler.
One 800-horsepower feed water heater and oil separator.
One two-jack lift, driving wheel, drop pit, complete.
One Underwriters' Blake-Knowles fire pump, 1,000 gallons per minute.
(All motors called for in the above should be alternating current, 2-phase, 220-volt, 60-cycle, 7,200 alternations per minute.)

For Houston & Texas Central Railroad Co., Ennis, Tex.:

One hot water boiler washing system for

washing and changing water in locomotive boilers.
One 15-inch slotter, belt-driven.
One 15-inch brass lathe, belt-driven.
One 2-inch turret lathe, belt-driven.
One 36-inch radial drill press, belt-driven.
One 36 x 36-inch x 12-foot planer, belt-driven.
One air compressor, 1,800 cubic foot per minute.
One electric turntable tractor for 80-foot turntable.

For the Morgan's Louisiana & Texas Railroad & Steamship Co., Algiers, La.:

One hydraulic driving box press, 50-ton, belt-driven.

The Sheely Motor Co., Passaic, N. J., entered the market last week for machinery for a complete automobile repair garage.

The General Electric Co., Pittsfield, Mass., last week purchased a 24-inch Gisholt turret lathe, three screw machines and three other machine tools. The purchase involved about $10,000.

The Deeds & Lynd Mfg. Co., which recently succeeded the W. F. Greene Co., Mechanicsville, N. Y., manufacturer of stove trimmings and hardware specialties, is interested in the purchase of additional automatic machinery, including polishing, buffing, wire rod heading, drilling and multiple drilling machines, wire cutters, etc.

The E. D. Jones & Sons Co., Pittsfield, Mass., purchased a 68-inch Gisholt vertical boring mill, a punching and shearing machine, friction saw, several saw tables, mortising machines, and an air compressor during the past week. Some wood-working machinery is still to be ordered. The company, which manufactures paper mill machinery, has just built a new three-story plant, about 70 x 200 feet.

Power Plant Equipment

Eddyville, Ky., is considering extending and improving its street lighting service, which is now being secured from a private plant. Address the clerk of the city council.

H. C. Wood, Chicago, has purchased the property of the Danville Light, Power & Traction Co., Danville, Ky., and has announced that it will be considerably enlarged. Address Supt. Fish for details.

Electrical equipment will be purchased shortly by the Crystal Block Collieries Co., Ashland, Ky., of which J. J. Johnson and others are stockholders. The company will develop 22,000 acres of coal land near Peach Orchard, Ky.

J. E. Shoop, Danville, Ky., who has secured a franchise to build an electric light plant in Williamstown, Ky., is also planning the construction of a similar plant at Mt. Vernon, Ky. D. Phelps is associated with him in the proposition.

It is understood that the Commonwealth-Edison Co., 120 W. Adams street, Chicago, is interested in the construction of a power plant at Kincaid, Ill., to supply current to 25 or more public service plants in that vicinity.

Water Works

Lancaster, Ky., which recently voted to issue $12,000 of bonds, has sold the issue and will appoint an engineer shortly to draw up plans and let contracts for a waterworks plant.

Plans are being prepared by E. T. Archer & Co., engineers, Kansas City, Mo., for the construction of a waterworks system at Glen Elder, Kans. The estimated cost of the plant is $15,000.

The village of Piper City, Ill., expects to construct a water works system at a cost of $22,000. Bids have already been received for the bonds necessary to finance the work. Further details may be obtained from N. G. Plank, village clerk.

The waterworks system of Clarksville, Tenn., is to be considerably enlarged in the near future, plans having been made by the city for reconstruction of the pumping station and other departments. S. J. Lowe is superintendent.

New Construction

The Freeland Steel Tank Co., Portage, Wis., is considering the erection of an addition to its plant.

Henry Disston & Sons, Inc., Philadelphia, have awarded a contract for a one-story testing building to cost $20,000.

The Nyanza Co., Woonsocket, R. I., is erecting a one-story brick building, 50 x 100 feet, to be used as a machine shop.

The H. J. Martin Forging Co., 510 South Harding street, Indianapolis, Ind., expects to erect a new forge shop, 60 x 100 feet in size.

Work on the pattern storage building, 100 x 100 feet, at the Newcastle, Pa., shops of the Standard Steel Car Co., is progressing rapidly.

The Brown & Sharpe Mfg. Co., Providence, R. I., will soon begin work on the construction of a new storehouse, 40 x 90 feet, of reinforced concrete.

The Griffin Wheel Co., Chicago and St. Paul, Minn., is erecting a two-story brick addition to its foundry at Stillwell and Phalen avenues, St. Paul, at a cost of $50,000.

The Jackson, Tenn., Ornamental Iron & Bronze Works, is planning the addition of a foundry. It manufactures ornamental work for use in banks and office buildings.

Plans have been completed by the Tri-City Railway Co., Rock Island, Ill., for new car repair shops to cost $85,000. K. C. Weedin is engineer in charge of the work.

The International Harvester Co. is building a $25,000 addition to its extensive shops at Milwaukee, known as the Milwaukee Harvester Works. The building will be of brick and steel, one story.

The Sterling Foundry Co., Sterling, Ill., has let a contract for razing all of the frame sheds and buildings in connection with the foundry, to be replaced by a brick building 15 x 80 feet, one-story.

Igoe Bros., Newark, N. J., manufacturers of wire, are about to erect a one-story frame warehouse, 70 x 120 feet, at Avenue A and Pointer street, that city. The structure will cost about $4,000.

The Milwaukee Yacht & Boat Co., Milwaukee, Wis., is erecting a $25,000 manufacturing plant at Greenbush and Becher streets, 80 x 180 feet in size, and of steel and hollow tile construction. H. C. Hengels is architect.

The Grote Mfg. Co., Evansville, Ind., expects to build a new machine shop, foundry and wood-working shop for which considerable new equipment will be necessary. The estimated cost of the work is $75,000.

The Continental Can Co. of New Jersey, with offices at Chicago, expects to erect a large addition to its can plant at Forty-seventh street and Grand avenue, Chicago. A site 187 x 68 feet has been purchased.

The Whitaker Mfg. Co., 509 West Monroe street, Chicago, makers of tools and implement parts, has bought three acres of land adjoining its present plant at Fifty-seventh avenue and Sixty-fifth street, with the intention of constructing a large addition.

The Youngstown Foundry & Machine Co., Youngstown, O., will begin work at once on the erection of a machine shop at its Reserve street works. It will be of steel construction, 60 x 200 feet. The present machine shop will be used exclusively for pattern storage.

The Simmons Mfg. Co., Kenosha, Wis., manufacturer of springs, cots, brass and iron beds, etc., has started construction on a four-story addition to building No. 38, Market street and Maiden Lane, to be devoted exclusively to the production of brass and iron beds.

The General Vehicle Co. last week commenced construction work on two new six-story factory buildings at Long Island City, N. Y. They will be located on Borden and Starr avenues, that city, and will cost approximately $600,000 and $400,000, respect-

ively. They will be used for the manufacture of motor vehicles.

The Athol Machine Co., Athol, Mass., has awarded the contract for the erection of a new $50,000 machine shop to Leland Taylor of that town. The building will be of reinforced concrete, with brick curtain walls and will be 60 x 142 feet, three stories. It will be completed Jan. 15, and will necessitate the hiring of 225 additional skilled mechanics.

The Scam & Son Mfg. Co., South Norwalk, Conn., which manufactures all kinds of ornamental brass, is planning to erect a new plant in South Norwalk as soon as it can complete arrangements for the purchase of a site. The company shut down its brass foundry about six months ago and is now having its castings furnished by other foundries. The proposed new plant will include a brass foundry and a gray iron foundry.

Plans for new locomotive shops at Decatur, Ill., have been completed by the Wabash railroad, and it is understood that the receivers have authorized the expenditure of $500,000 on the improvements this year. The total cost of the new work will amount to $750,000 and a large number of new machine tools will be required. E. F. Needham, superintendent of the locomotive and car department, Springfield, Ill., has the matter in charge.

The Nash Engineering Co., South Norwalk, Conn., manufacturer of hydro-pneumatic pressure blowers and vacuum pumps, is erecting a new reinforced concrete plant, 136 x 136 feet, on the Wilson Point road, that city. It expects to occupy a portion of the new plant in about a month. The equipment for the new plant will comprise that in the present plant and some additional machinery for which the company will soon be in the market.

The United Foundry & Machine Co., Bridgeport, Conn., which was organized about four months ago by the former proprietors of the plant, and is now owned by the Aluminum Castings Co., Fairfield, Conn., is erecting a new plant at Bruce and Stratford avenues, Bridgeport. The new structure will be 100 x 180 feet, and will include a foundry and a machine shop. The present plant at Whiting and Singer streets, Bridgeport, will be abandoned. The company manufactures bronze, brass and aluminum castings for automobile and marine work. It is planned to occupy the new plant some time in October.

The Canadian Steel Foundries, Ltd., will expend about $200,000 in extensions to its plant at Welland, Ont. These include a 100-foot extension to the main building; 100-foot extension to storage shed, new hot beds in the 12-inch and 22-inch mills, new building 50 x 125 feet, for an 18-inch mill, two billet-heating furnaces, one busking furnace, an extension of the foundry, new sewerage plant, a 25-ton basic furnace, a 35-ton traveling crane, new power and air compressing systems, and various other improvements. This will enable the company to increase the number of its employes to about 1,000, and to double its output.

Plans are being prepared for a group of factory buildings for the Armstrong Mfg. Co., which will be located at the town site of Armstrong, about 28 miles from Portland, Ore. The buildings that are to be constructed at once consist of a one-story brick office, a power house, pattern shop, foundry, two machine shops, pattern storage shop and a shipping warehouse. The buildings will be of reinforced concrete and brick and will be fireproof. The plant when complete will possess about 50,000 square feet of floor space and will be used entirely by the company in the manufacture of sawmill machinery and special tools for dressing saws. It is announced that the project is amply financed. E. P. Armstrong is president of the company. In connection with the plant a model town site will be plotted and developed.

The Forest City Engineering Co., Superior building, Cleveland, has let contracts for the erection of a new plant for the Allyne-Ryan Foundry Co., Cleveland. The plans call for a building 112 x 280 feet. It will be located on a six-acre tract along the Belt Line and Aetna road, and will contain the foundry, core rooms, chipping and grinding rooms, sand blast room, the cupola room and offices. The building will be a modern structure with steel superstructure of the monitor roof type and having 5,600 square feet of skylight in the roof. Provision has been made for the installation of a 10-ton crane running through the center and also other smaller cranes for the sides. The total steel tonnage will be about 200 tons. The plant will be designed for doing special work, as it is the intention to cast only automobile parts, such as cylinder cases, etc. The work on the plant has begun and it is the intention to have it completed and ready for occupancy by the first of the year.

The Worcester Pressed Steel Co., Worcester, Mass., advises that it is erecting a new pickle house, 66 x 108 feet, this addition being required for pickling hot rolled steel in coils for the cold rolling mill department. The contract for this addition has been let, the superstructure is up and the building will be completed in about one month. The company has plans practically completed for a new cold rolling mill building and equipment for cold rolling strip steel. This building will be about 100 x 133 feet. This is in addition to the company's present facilities for this class of work. The company cold rolls and presses form vanadium steel. Excavation is under way for an addition to the main building also. This addition will be 90 x 100 feet, two stories, of mill construction with monitor roof and gallery. These additions to the company's plant are required to increase its equipment and facilities so that it can better take care of its customers' requirements for cold drawing, pressing and forming parts to order from steel and other sheet metals and also for cold rolling strip steel.

New Buyers

(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

The following manufacturing concerns have filed articles of incorporation:

Vail Galvanizing Plant, Inc., Boston; $6,000; by Albert S. Vail, president; John G. Church, treasurer, and Norman F. Vail.

Southern Aluminum Co., Manhattan, New York; by Dr. Paul Heroult, 149 Broadway; Theodore Sternfeld, 52 Broadway; Carl M. Loeb, 52 Broadway.

Simplex Carburetor Co., Manhattan, New York; $150,000; to manufacture and deal in carburetors; by Albert L. Kull, Colcord Upton, Simon J. Mayer, all of 1731 Broadway.

Anderson Wire & Steel Co., Anderson, Ind.; $150,000; to buy plant of A. C. Shimer, Anderson; by A. C. Shimer, Morris B. Jones, Sanford M. Keltner and others.

Bell, Bayers & Woodberry Co., Boston; $10,000; to manufacture and deal in electrical supplies; by Harry I. Bayers, president; Ronald S. Woodberry, treasurer, and John G. Bell.

The Gerhart Spring Tire Co., Marietta, O.; $15,000; vehicle wheel tires, wheels, tires, automobiles, etc.; by J. A. Gerhart, G. O. Balzman, Casper Hopp, C. C. Mohler and A. A. Schramm.

National Marine Lamp Co., Man-

hattan, New York; $60,000; to manufacture and deal in marine lamps and sheet metals; by Frederick Bersky, 52 Elizabeth street; Hjalmar Geruldsen, 212 Pearl street; John Kleinberger, 261 Pearl street.

Financial

The Union Tool Co., Irwin, Pa., has been incorporated under the laws of the state. Capital stock, $15,000.

The affairs of the Berkshire Motor Co., of Springfield, Mass., are being liquidated at the instance of creditors. The company's liabilities are placed at $25,000, and its assets are said to be of a lesser value.

Hugh B. Turner and Henry M. Warren have been appointed receivers of the Iszard-Warren Co., Philadelphia, manufacturer of engineering instruments. Action was taken by Benjamin F. Warren, a stockholder, and the company, through its officers, joined in the application for receivership. Liabilities are claimed to be $79,300, against assets of $71,510.

Permanent receivers for the Providence Engineering Works, Providence, R. I., were appointed last week by the supreme court. Several banking institutions, including the Worcester Trust Co., of Worcester, Mass., have claims against the works amounting to $150,000. The receivership originated in the difficulties of the United States Motors Co., against which the engineering works have a claim of $152,000. Attorneys assert that the book assets amount to about $700,000, and the liabilities about $190,000. The receivers are Harvey A. Baker, James M. Scott and Richard A. Robertson.

General Industrial

Hamilton & Beach, Racine, Wis., have purchased a site upon which they will erect a plant, for the manufacture of electrical goods, to cost $25,000.

George W. Owens, Fred G. Decker and Louis A. Mesker, incorporators of the Engine Starter Co., St. Louis, Mo., expect to equip a plant for the manufacture of a self-starting device for automobiles.

The Anderson Forge & Machine Co., Detroit, has placed on the market a new patented forged front axle for automobiles, known as the Caster axle. This axle will permit the car to be controlled by one front wheel in case of the breakage of the tie-rod. The center of the spindle is off-set from the center of the axle, which allows for this control by one wheel, the free wheel following every turn of the controlled wheel. Maurice Wolfe is to handle the sales end for this axle.

The Buffalo Brake Beam Co., which has a branch at Brantford, Ont., will establish a plant at Hamilton, Ont. Thomas E. Corliss, manager of the manufacturing department, who has been in Hamilton for some time conducting negotiations, announces that the company is now ready to start work, having secured a site on which a temporary plant will be erected. The company has a contract to supply the brake beams for the new National Car Co. Hamilton will be made the headquarters for the company's Canadian business.

Gen. Otto H. Falk, receiver of the Allis-Chalmers Co., Milwaukee, denies the report that the Reliance works, located in the city of Milwaukee, and forming the original plant of the E. P. Allis Co., would be abandoned and the equipment consolidated with the main works in West Allis, Milwaukee county. Gen. Falk says the rumor originated from the order to move a single department from Reliance to West Allis, but that this will be supplanted by another department to be moved from West Allis. The transfer is for temporary convenience and is insignificant.

The Long Mfg. Co., Detroit, advises that it expects to occupy its new plant about Oct. 10. It will be 120 x 270 feet, two stories, the foundation having been laid for two additional stories. The company has doubled its floor space and almost trebled its capacity because of departments being properly related to each other as to operation and general efficiency. The company is equipped to turn out 300 or more radiators per day and it will also be equipped to make metal accessories incidental to the trade, but it will continue to specialize in radiators, both for the auto and tractor trade.

The property and plant of the Consolidated Casting Co., formerly the W. F. Greene Co., Mechanicsville, N. Y., has been purchased by A. P. Deed and L. E. Lynd and will be operated in the future as the Deed & Lynd Mfg. Co. Mr. Deed was formerly connected with the Troy Nickel Works, Albany, N. Y., which was badly damaged by fire on June 4. Mr. Lynd for years has been associated with the W. F. Greene Co. and the Consolidated Casting Co. The plant is well equipped for the manufacture of high class stove trimmings and piano hardware and its operations will continue to be devoted to these lines of products. No new construction is contemplated but the company is planning to install considerable additional automatic machinery.

A new railway, which will use gas-electric cars, is to be built immediately in Ontario, Can. It will be known as the St. Lawrence railway. Starting at Ottawa it will form a belt line, running to Morrisburg and back to Ottawa, via Prescott, Brockville and Winprior. A branch will run from Morrisburg through Cornwall to the Quebec border. The project is being promoted by J. A. Morden and R. E. D. Percy, of Toronto, the latter of whom is the representative of English capitalists who are underwriting the bond issue. The mileage is 274 miles, the estimated cost of construction being $20,000 per mile, which will be met by a bond issue of $5,480,000. The share capital of the company is $4,000,000. Arrangements have been completed for putting construction survey parties to work at once, and it is hoped to have much of the rock work done during the winter and to complete the line by the spring of 1914.

Trade Notes

The Pfannmueller Engineering Co., engineer and power equipment, Chicago, will move its general offices from the machine shop and warehouse at 4701 South Ashland avenue, to 1733 First National Bank building, that city, on Oct. 1.

The South Norwalk Engineering Co., South Norwalk, Conn., has contracted with the J. L. Pilling Co., Chicago, for manufacturing electric and compressed air turntable tractors and air hoists of the type controlled by the Pilling company. The contract is to run 14 years.

The Youngstown Sheet & Tube Co., Youngstown, recently awarded a contract for five Chapman rotary gas producers to the Chapman Engineering Co., Mt. Vernon, O. The first installation of this type of producer was made at the plant of the Youngstown Sheet & Tube Co. two years ago.

The Emergency Horse Shoe Co., New Brunswick, N. J., recently incorporated, advises that it is marketing a special horseshoe and has appointed as its sole agents the Neverslip Mfg. Co., New Brunswick, N. J., which will manufacture and market its product.

The Erie-Buffalo Tube Co., Erie, Pa., recently incorporated, advises that it is the successor of the Buffalo Tube Co., a New York corporation. The company is a manufacturer of ⅜-inch and smaller seamless brass and copper tubing principally for motor-car oil and gas pipes.